

MOVING FORWARD: HOW INDONESIA'S DISTRICTS REDUCE STUNTING





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The background of the entire page is a faded, grayscale photograph. It shows a woman wearing a hijab and a child sitting together. The child is looking down at a book or paper they are holding. In the foreground, there are some small, colorful objects, possibly toys or educational materials. A solid teal horizontal bar is positioned above the orange text box.

MOVING FORWARD:

**HOW INDONESIA'S
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WHAT IS THIS BOOK ABOUT?

This book is written in several parts: an introduction in Chapter 1; stories of best practices from the field in Chapter 2, and lessons learned from implementation of nutrition programs in Chapter 3. We conclude with a chapter highlighting key takeaways from the best practices and lessons learned. A technical discussion on stunting projections at the national and district levels is included in the annex. Chapters two and three feature stand-alone stories of best practices or lessons learned from nutrition programs in Indonesia. The reader is welcomed to move from story to story in any order desired.

In Chapter 2, the stories feature projects in the provinces of East Kalimantan, Central Java, East Java, West Nusa Tenggara and East Nusa Tenggara.

In East Kalimantan's City of Samarinda, we learned about the innovative clustering method of the **Program Pesut Mahakam** – the brainchild of the head of the local *Puskesmas* – which enabled *kaders*, midwives and nutritionists to deliver effective and continuous maternal and child health care in an integrated manner.

In Surabaya City of East Java Province, one woman's drive and determination ensured no *Posyandu* was left behind when it came to accessing fun games and songs delivered through **emotional demonstrations** – **Emo-Demos** - which served to change health and care-taking behavior of pregnant women and young families.

In Nganjuk District in the province of East Java, a midwife's community empowerment efforts triggered a district-wide success in embracing the **Taman Posyandu Program** which integrates basic social services in the *Posyandu*.

In West Nusa Tenggara Province, West Lombok District has shown Indonesia and other parts of the world how **effective leadership and multisectoral coordination and collaboration** can turn the tide against stunting.

In Eastern Indonesia, more specifically the province of East Nusa Tenggara, we learned how community engagement was key to sustainable treatment for acute malnutrition or wasting, and how perseverance and continuous community involvement enabled a donor-funded program – **Community Management of Acute Malnutrition (CMAM)** - to be developed and integrated with the national program. As CMAM's next iteration, the **Integrated Management of Acute Malnutrition (IMAM)** is now being scaled-up nationwide.

Whereas in parts of East Nusa Tenggara and East Java, integrated planning, implementation and monitoring of maternal nutrition programs – long managed independently of one another - were key to addressing micronutrient deficiencies and treating diarrhea among pregnant women and children, as evidenced by the **Micronutrient Supplementation for Reducing Mortality and Morbidity (MITRA) Program**.

In West Sumbawa District of West Nusa Tenggara, through the award-winning **Pencerah Nusantara Program**, we discovered that revitalizing the primary health care centres (*Puskesmas*) with a team of well-trained, young healthcare professionals can make the difference in improving the health and well-being of rural communities, including pregnant women and young children.

In the Timor Tengah Selatan District of East Nusa Tenggara, one of the most food insecure regions

of Indonesia, giving farming and animal husbandry skills to households, especially those led by women, proved pivotal to ensuring sustainable access and consumption of micronutrient-rich foods. The program, known as **Rapid Action on Nutrition and Agriculture Initiatives (RANTAI)**, was part of the multisectoral Project Laser Beam, described in Chapter 3.

As the pilot site of a novel but crucial **mentorship program**, the local government of Banggai District in the Province of Central Sulawesi received mentoring and technical supervision for maternal and child health from Hasanuddin University (UNHAS), thanks to the collaboration between the local government and experts from the *Institut Gizi Indonesia* (IGI).

As we move back to the Island of Java, specifically the Special Region of Yogyakarta, we learned how the local government worked hand-in-hand with the community to successfully implement the **Community-Led Total Sanitation (CLTS)** or **Sanitasi Total Berbasis Masyarakat (STBM)** strategy, winning awards from the Central Government along the way. Read more on the role of the *Sultan* of Yogyakarta in the story.

In Chapter 3 of this book, we move from story-telling to provide lessons learned from nutrition initiatives implemented by the central government, non-governmental organizations, development partners and private sector.

In East Nusa Tenggara Province, a multi-partner initiative introduced the multisectoral project, **Project Laser Beam**, to Timor Tengah Selatan District. The project focused on nutrition-specific and nutrition-sensitive initiatives to reduce child undernutrition.

In the Special Region of Yogyakarta, an innovative method to combine fish farming with rice farming (**Minapadi**), proved successful to increase not only the household income, but also improved the diversity in the diets of the villagers and this was done in an environmentally friendly and sustainable manner.

Changing health behaviors and caring practices of the first 1,000 days households, as well as improving public awareness of stunting had been identified as crucial steps to addressing stunting in Indonesia. The Ministry of Health developed the **National Behavior Change Communication Strategy (StraCom)** for stunting prevention and the story described the process of developing the StraCom.

Program Keluarga Harapan, a conditional cash transfer program initiated by the Government of Indonesia, was able to promote health and educational investments in children. Large reductions in stunting was also seen in children of beneficiaries.

The length mat is an important tool for raising community awareness of stunting. A summary from an **assessment on the usage of the length mat “Tikar Pertumbuhan”** provided recommendations on how the usage of the length mat can be optimized and scaled-up.

Last but not least, in keeping with the structure of this series, an updated stunting projection for the national level and a newly developed stunting projection for the district level are described in Annex 1 of this book. The models allow for estimations of stunting rates, based on nutrition-sensitive and -specific data.



FOREWORD



K.H. Ma'ruf Amin

**THE VICE
PRESIDENT OF
THE REPUBLIC
OF INDONESIA**

Human capital is key to Indonesia's future. Investing in people is how Indonesia can achieve its goals of accelerating economic growth and reducing poverty and inequality.

Already, Indonesia is committed to investing significant resources to improve its human capital, and has been implementing programs to improve health, education and social protection, including the National Strategy to Accelerate Stunting Prevention (StraNas Stunting).

We know that the first 1,000 days of a person's life are very important and will affect them for the rest of their lives. Children who eat adequate nutritious food, have access to good healthcare, clean water and sanitation, and are given proper care face a much lower risk of stunting and a higher chance of reaching their potential.

Guided by the StraNas Stunting Framework - which consists of five pillars aimed at raising public awareness of stunting, securing nationwide commitments to reduce stunting, and managing, implementing, and converging the delivery of the priority nutrition interventions across all three levels of government - Indonesia is on an accelerated path towards stunting prevention. We believe that with a strong commitment and multi-sectoral approach, we can reduce the rate of stunting (amongst children under 5 years old) to 14% in 2024 - an ambitious, yet attainable goal.

The Secretariat of The Vice President of Republic of Indonesia is leading the work of coordinating the many sectors and stakeholders involved in Indonesia's fight against stunting. With the support of the implementing agencies at local level, nutrition-specific and nutrition-sensitive interventions are delivered to the provinces, districts and villages across Indonesia.

By 2024, we aim to reach all 514 districts in Indonesia. This will involve an all-of-government and all-of-society approach to preventing stunting. All parties, from national to local level, are directly assigned to work together - from ministries to ministries, sectors to sectors, and *dinas* to *dinas*, and between all these - because it is evident that addressing stunting requires a multi-sectoral team working closely together.

This book, which showcases some of the most promising and excellent local initiatives from the districts, comes at a time when Indonesia is combatting the COVID-19 pandemic. Not only does it threaten to delay the stunting progress Indonesia has made since the StraNas Stunting was launched in 2018, but the pandemic also inevitably puts at risk our ambitious objective to lower the stunting rate to 14% in 2024.

However, despite the challenges and setbacks brought about by the COVID-19 pandemic, the stunting prevention program has shown remarkable resilience. Frontline workers who deliver the interventions have demonstrated exceptional strength and commitment, ensuring key nutrition services continue to be delivered in the midst of a pandemic.

It is the passion of these frontline workers, along with the leadership and commitment of the local *dinas* and districts leaders, that makes this book such a compelling read. During these tough times, it reminds us of the gains we have achieved, and can continue to achieve as we adapt to the conditions imposed by the pandemic.

We hope this book will serve as an inspiration to all stunting reduction actors and partners at all levels, and enable us to learn from one another as we continue our fight against stunting.

Jakarta, September 2021

K.H. Ma'ruf Amin
Vice President of the Republic of Indonesia

FOREWORD



Satu Kahkonen

**COUNTRY
DIRECTOR,
WORLD BANK
INDONESIA &
TIMOR LESTE**

Human capital is key to achieving Indonesia's development goals of accelerated economic growth and reduced poverty and inequality. Recognizing this, Indonesia has made remarkable progress in its efforts to improve its human capital. Since 2018 Indonesia has sought to increase its investments in human capital and in improving the utilization and outcomes of existing spending on health, education, and social assistance. Also, despite unprecedented challenges due to the COVID-19 pandemic, Indonesia has continued to invest in its people.

Indonesia's efforts have yielded results. After a long period of stagnation, the national stunting rate declined by an unprecedented 3.1 percentage points between 2018 and 2019. And Indonesia is aiming for further reductions by the year 2024.

The Government of Indonesia's National Strategy to Accelerate Stunting Prevention (StraNas Stunting) has enabled these remarkable gains in stunting reduction and prevention. This strategy employs a multi-sectoral convergent approach to address stunting prevention, with as many as 23 ministries and almost US\$4 billion per year of government funds committed to the delivery of nutrition-specific and nutrition-sensitive interventions. When the strategy is fully implemented in all 514 districts and cities in Indonesia, all households with a pregnant mother and/or a child under the age of two will be able to gain simultaneous

access to nutrition-specific and -sensitive interventions ranging from health to education, social protection, water and sanitation, and more. This will give millions of Indonesian children the best possible start in life, enabling them to live to their full potential.

The World Bank is committed to working with Indonesia to raise its human capital, address stunting and continue to facilitate knowledge exchange between Indonesia and other countries. As Indonesia's steadfast partner and ally in this crucial undertaking, the World Bank supports the Government of Indonesia to achieve its ambitions by providing policy and technical advice, analytics and evaluation, innovative technology as well as results-based financing through the Investing in Nutrition and Early Years Program.

This book showcases best practices from districts and sub-districts all over Indonesia and serves as an inspiration for Indonesia to continue the fight against stunting. The passion and commitment shown by individuals, organizations, and local governments in the stories in this book remind us that while the challenges of improving human capital outcomes and reducing stunting are large, Indonesia has what it takes to address stunting and does it with a plenty of heart.



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This book is a compilation of stories from all over Indonesia. It is told by many, and written by Elvina Karyadi, Melissa Chew, Claudia Rokx, Yurdhina Meilissa, Elviyanti Martini, Akim Dharmawan and Pratiwi Ayuningtyas. The projection model and Annex 1 are written by Lubina Qureshy.

This book is edited by Paul Gallagher.

This book would not have been possible without the help of many *kaders*, healthcare workers, district and central governments, development partners, civil society organizations, policy makers and academicians who graciously shared their stories with us. Their earnest, and generous sharing of what they do, how they do it and the important lessons they have learned while doing it, has contributed to a book that showcases some of the best multisectoral stunting reduction efforts in Indonesia.

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We also want to give special thanks to our partners in development, national and international as well as civil society organizations and professional organizations. Among the most sustainable, scalable and important nutrition-specific and nutrition-sensitive initiatives in Indonesia and from whom we learned and have used their work in this book are: Global Alliance for Improved Nutrition (GAIN), United Nations Children's Fund (UNICEF), Nutrition International (NI), Center for Indonesia's Strategic Development Initiatives (CISDI), World Food Programme (WFP), *Institut Gizi Indonesia* (IGI) and Helen Keller International.

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This book is dedicated to Indonesian nutrition and health front-liners, whose relentless work in the midst of a pandemic, keeps Indonesia moving forward in the fight against stunting.



ABBREVIATIONS AND ACRONYMS

1,000 HPK = *1,000 Hari Pertama Kehidupan* - First 1,000 days of Life

ACF = Action Contre la Faim (Action Against Hunger)

AKKOPSI = Association of Cities and Districts Concerned about Sanitation in Indonesia

ANC = Antenatal care

APBD = *Anggaran Pendapatan dan Belanja Daerah* - Local Government Budget and Expenditure

APBN = *Anggaran Pendapatan dan Belanja Nasional* - Central Government Budget and Expenditure

ATIKA = *Hati ayam, telur, ikan* - Chicken liver, eggs, fish

BABS = *Buang Air Besar Sembarangan* - Open defecation

Balita = *Bawah lima tahun* - Under the age of five

Bappeda = *Badan Perencanaan Pembangunan Daerah* - District Planning and Development Agency

Bappenas = *Badan Perencanaan Pembangunan Nasional /Kementerian Perencanaan Pembangunan Nasional* - The National Development Planning Agency/Ministry of National Development Planning of the Republic of Indonesia

BAU = Business as usual

BCC = Behavior Change Communication

BCD = Behavior-Centered Design

BCI = Behavior Change Intervention

BF = Breastfeeding

BKB = *Bina Keluarga Balita*

BOK = *Bantuan Operasional Kesehatan* - Health Operational Assistance

BPNT = *Bantuan Pangan Non-Tunai* - Non-cash Food Assistance

BPS = *Badan Pusat Statistik* – Statistics Indonesia

C-MAM = Community-Based Management of Acute Malnutrition

CCT = Conditional Cash Transfer

CED = Chronic Energy Deficiency

CF = Complementary feeding

CISDI = Center for Indonesia's Strategic Development Initiatives

CNP = Cambodian Nutrition Project

D/S = *Jumlah balita yang datang dan ditimbang/ Jumlah balita sasaran* - Total under fives who visited *Posyandu* and were weighed/Total under fives in catchment area

DAK = *Dana Alokasi Khusus* - Special Allocation Fund

DEWATS = Decentralized Wastewater Treatment Systems

DF = Demonstration Farm

DHO = District Health Office

Dinas PUPR = *Dinas Pekerjaan Umum dan Perumahan Rakyat* - Office of Public Works and Housing

Disperdagin = *Department of Industry and Commerce*

DIY = *Daerah Istimewa Yogyakarta* - Special Region of Yogyakarta

DKP = *Dewan Ketahanan Pangan* - Department of Food Security

DP = *Dinas Pertanian* - Department of Agriculture

EBF = Exclusive breastfeeding

ABBREVIATIONS AND ACRONYMS

ECED = Early Childhood Education and Development

EFA = Essential Fatty Acids

EHFP = Enhanced Homestead Food Production

EJ = East Java

Emo-demo = Emotional-demonstration

ENT = East Nusa Tenggara

FAO = Food and Agriculture Organization

FBF = Fortified Blended Food

FCS = Food Consumption Score

FG = Family Guide

Forsidas = *Forum Komunikasi Daerah Aliran Sungai* - Watershed Communication Forum

GAIN = Global Alliance for Improved Nutrition

GAMAK = *Gerakan Anti Merarik Kodek*

GDP = Gross Domestic Product

Gemadazi = *Gerakan Masyarakat Sadar Gizi*

GMP = Growth Monitoring and Promotion

GoI = Government of Indonesia

GSC Program = *Generasi Sehat dan Cerdas Program*

HDI = Human Development Index

HDW = Human Development Workers

HFIAS = Household Food Insecurity Access Scale

HIV/AIDS = Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome

HKI = Helen Keller International

HRH = Human Resource for Health

I-MAM = Integrated Management of Acute Malnutrition

IFA = Iron folic acid

IGI = *Institut Gizi Indonesia*

IMCI = Integrated Management of Childhood Illnesses

INEY = Investing in Nutrition and Early Years

INI = Integrated Nutrition Interventions

IPC = Interpersonal Communication

ISP = Information System of Posyandu

IYCF = Infant and Young Child Feeding

J-PAL SEA = Abdul Latif Jameel Poverty Action Lab

Jampersal = *Program Jaminan Persalinan* - National Health Insurance Scheme for Maternal Health

JKN = *Jaminan Kesehatan Nasional* - National Health Insurance

KIA = *Kesehatan Ibu dan Anak* - Maternal and Child Health

KIP = Kampung Improvement Program

KKN = *Kuliah Kerja Nyata*

KMS = *Kartu Menuju Sehat* - Growth Monitoring Card

KRPL = *Kawasan Rumah Pangan Lestari* - Sustainable Community-Based Farming

LBW = Low birth weight

LFBSM = Local Food Based School Meals

LNS = Lipid Nutrients Supplements

LO-ORS = Low-Osmolarity Oral Rehydration Salts

Lombar = *Lombok Barat* - West Lombok

ABBREVIATIONS AND ACRONYMS

LROA = *Layanan Rehidrasi Oral Aktif* - Active Oral Rehydration Service

LSHTM = London School of Hygiene and Tropical Medicine

M&E = Monitoring and Evaluation

MAM = Moderate Acute Malnutrition

MCN = Mother and Child Nutrition

MDG = Millennium Development Goal

MITRA = Micronutrient Supplementation for Reducing Mortality and Morbidity in Indonesia

MMAF = Ministry of Marine Affairs and Fisheries

MNP = Micronutrient Powder

MoH = Ministry of Health

MoU = Memorandum of Understanding

MP ASI = *Makanan Pendamping Air Susu Ibu* - Complementary Foods

MUAC = Mid-Upper Arm Circumference

NAD = Nanggroe Aceh Darussalam

NGO = Non-Governmental Organizations

NI = Nutrition International

NIHRD = National Institute of Health Research and Development

NTT = *Nusa Tenggara Timur* - East Nusa Tenggara

ODF = Open Defecation Free

OKI = Ogan Komering Ilir

OPD = *Organisasi Perangkat Daerah* - Regional Apparatus Organizations

ORS = Oral rehydration solutions/salts

PAMMASKARTA = *Paguyupan Air Minum Masyarakat Yogyakarta* - Yogyakarta Community Drinking Water Society

PAMSIMAS = Community-based Water Supply and Sanitation Project

PAUD = *Pendidikan Anak Usia Dini* - Early Childhood Education and Development

PHO = Provincial Health Office

PIS-PK = *Program Indonesia Sehat dengan Pendekatan Keluarga* - Healthy Indonesia Program with Family Approach

PKH = *Program Keluarga Harapan* - Family Hope Program

PKK = *Pemberdayaan dan Kesejahteraan Keluarga* - Family Welfare Movement

PLB = Project Laser Beam

PLBI = Project Laser Beam Indonesia

PLW = Pregnant and Lactating Women

PMD = *Dinas Pemberdayaan Masyarakat dan Desa* - Community and Village Empowerment Agency

PMT = *Pemberian Makanan Tambahan* - Supplementary Feeding

PoA = Plan of Action

Poskesdes = *Pos Kesehatan Desa* - Village Health Post

Polindes = *Pos Bersalin Desa* - Village Maternity Post

Posyandu = *Pos Pelayanan Terpadu* - Community Health Post

POZISI = *Pondok Gizi Terintegrasi ASI Eksklusif dan Perilaku Hidup Bersih Sehat* - Integrated Exclusive Breastfeeding and Clean and Healthy Lifestyle Nutrition Post

ABBREVIATIONS AND ACRONYMS

Pustu = Puskesmas Pembantu - Auxiliary Puskesmas

PPSP = Percepatan Pembangunan Sanitasi Permukiman - Urban Sanitation Development Program

PSA = Potential Sustainability Assessment

PTT = Pegawai Tidak Tetap - Contract officers

RAD-PG = Rencana Aksi Daerah Pangan dan Gizi - Local Food and Nutrition Action Plan

Rakornis = Rapat Koordinasi Teknis - Technical Coordination Meeting

RANTAI = Rapid Action on Nutrition and Agriculture Initiatives

ROMS = Yogyakarta Regional Oversight Management Services

RPJMD = Rencana Pembangunan Jangka Menengah Daerah - Regional Medium Term Development Plan

RR = Risk Ratio

RT = Rukun Tetangga - Neighborhood

RUTF = Ready to Use Therapeutic Foods

SAM = Severe Acute Malnutrition

SBCC = Social Behavioral Change Communication

SCN = United Nations Standing Committee on Nutrition

SD = Standard Deviation

SDG = Sustainable Development Goal

SDIDTK = Stimulasi, Deteksi dan Intervensi Dini Tumbuh Kembang - Early Detection and Intervention for Growth and Development

Setwapres = Sekretariat Wakil Presiden - Secretariat of Vice President Office

SPAMDES = Sistem Penyediaan Air Minum Desa - Rural Drinking Water Supply System

SPM = Standard Pelayanan Minimal - Minimum Service Standards

SSGBI-SUSENAS = Studi Status Gizi Balita Indonesia – Survei Sosial Ekonomi Nasional - Indonesia Under-Five Nutritional Status Study – National Social Economy Survey

SSK = Strategi Sanitasi Kabupaten - City Sanitation Strategies

STBM/CLTS = Sanitasi Total Berbasis Masyarakat - Community-Led Total Sanitation

StraCom = Strategi Komunikasi Perubahan Perilaku - National Behavior Change Communication Strategy

StraNas Stunting = National Strategy to Accelerate Stunting Prevention

SUN = Scaling Up Nutrition

TNP2K = Tim Nasional Percepatan Penanggulangan Kemiskinan - National Team for the Acceleration of Poverty Reduction

ToT = Training of Trainers

TTS = Timor Tengah Selatan

UNHAS = Universitas Hasanuddin

UNICEF = United Nations Children's Fund

VAS = Vitamin A Supplementation

WFP = World Food Programme

WHO = World Health Organization

OVERVIEW

BEST PRACTICES: STORIES FROM THE FIELD

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Enhanced partnerships and integrated programming improves maternal and child health
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Better skills for health workers pay off for nutrition of mothers and children
- » Timor Tengah Selatan:
Fostering the farming skills of households for a better diet
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- » StraCom: Changing behaviors through effective communication



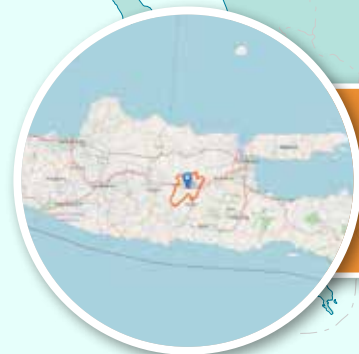
SAMARINDA

A river dolphin swims to the rescue



SURABAYA

Changing hearts, minds and diets through games and songs



NGANJUK

Empowering village communities to boost health and well-being



STRACOM, PKH, LENGTH MAT



YOGYAKARTA

Award-winning sanitation cleans up city's riverbanks

Where fishponds and rice paddies meet



BANGGAI

Academia and district leaders collaborating for impact



WEST LOMBOK

A poster child for coordinating the fight against stunting



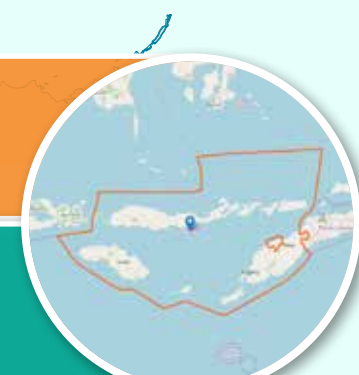
WEST SUMBAWA

Better skills for health workers pay off for nutrition of mothers and children



TIMOR TENGAH SELATAN

Fostering the farming skills of households for a better diet



EAST NUSA TENGGARA

No time to waste in the fight against wasting

Public-private partnership:
The early adopter of convergence in a remote region with food insecurity



EAST NUSA TENGGARA AND EAST JAVA

Enhanced partnerships and integrated programming improves maternal and child health



A photograph of a baby lying in a hospital bed, looking up with one hand raised. The image is partially covered by a teal and orange graphic overlay in the top right corner.

01

CHAPTER 1

A TRIBUTE TO LOCAL HEROES IN INDONESIA'S FIGHT AGAINST STUNTING



This book is a tribute to local heroes in Indonesia's fight to reduce stunting in children.

It celebrates the passion, compassion and innovation of *kaders*, midwives, nutritionists, community health workers, government officials and local businesses.

It celebrates the success of a coalition dedicated to tackling chronic malnutrition in children. But it does more than merely celebrate success.

It highlights how these small successes can be reproduced at scale to make a big difference in Indonesia's drive to reduce chronic malnutrition in children.

It shows what can be accomplished when mothers, fathers, families, and communities not only appreciate the need for better health and nutrition but actively seek it out in the most far flung villages in a country seeking to educate and empower citizens to help eradicate stunting.

Indonesia has come a long way in its fight against stunting. In 2000 around 40% of children in Indonesia

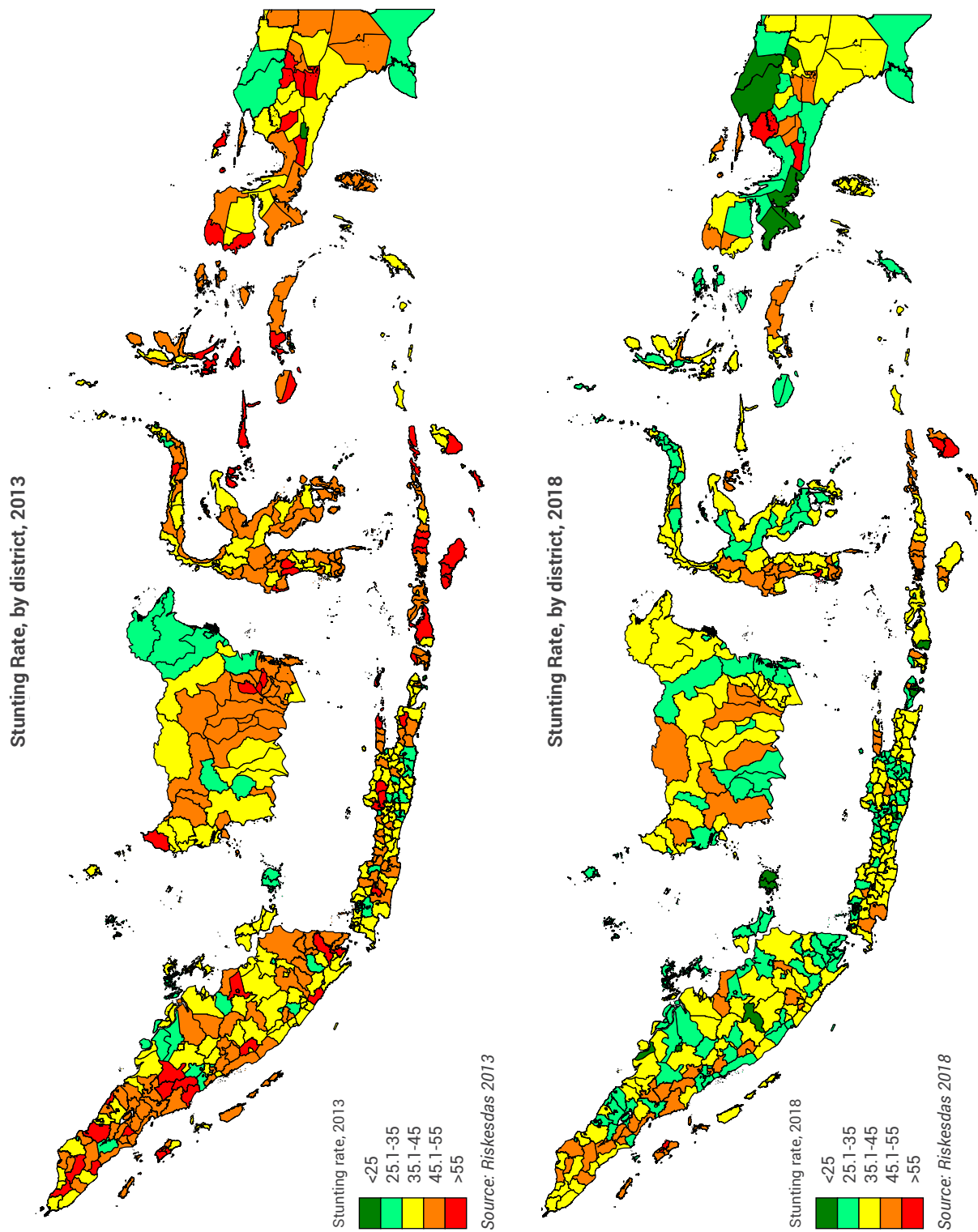
were stunted. By 2018 this had fallen to just over 30% and in 2019 the Ministry of Health reports the rate at around 27% (Frankenberg & Thomas, 2000; NIHRD, 2013, 2018, 2019).

That, in no small part, was down to a national drive and determination to tackle the scourge of stunting blighting the lives of millions of children.

This book follows Aiming High: Indonesia's Ambition to Reduce Stunting, which told the national story of nutrition in Indonesia and the way forward for a country dedicated to eliminating chronic malnutrition in children. Using a multi-sectoral approach and drawing from lessons learned in tackling stunting over the past several decades, Indonesia is now on a renewed, ambitious path to accelerate stunting reduction through the National Strategy to Accelerate Stunting Prevention (StraNas Stunting).

The diversity of Indonesia has traditionally been reflected in the diversity of stories of success and failure in driving down rates of stunting in different districts (Figure 1).

Figure 1: Comparison of stunting rate for under fives, by district



Between 2007-2013 several districts recorded double digit reductions in stunting rates. Other districts saw rates of stunting increase by double digits.

Overall, this diversity resulted in rates of stunting remaining stagnant between 2007 and 2013 at about 36 percent.¹ Things have improved and improved markedly since then.

By 2018 rates of stunting were falling nationwide with more and more districts reducing stunting rates. There were significantly fewer red spots on the map of Indonesia marking districts where stunting affected more than half of all children under the age of five.

For example, in Sumatera, in 2013, 15 districts had a level of over 55% for stunting among under-fives. By 2018, only one district had that high level. Nationally, 31 out of 496 districts in 2013 recorded stunting rate above 55%. By 2018 only four out of 514 districts reported stunting rate above 55%.

Indonesia is heading in the right direction but the journey towards negligible rates of stunting is far from over.

This publication is part of a series on stunting reduction which started with the Aiming High book. It showcases some of the best and most promising local initiatives that have helped to turn the tide.

These initiatives are making a difference locally today but could make a difference nationally tomorrow if they are replicated at scale and adapted to local conditions and circumstances.

Most of the stories shared in this book are about small-scale, local interventions that have unlocked success from one district to the next.

We hope that these success stories have national resonance. They can inspire, inform and influence StraNas Stunting.

Since it was first launched in 2017, StraNas Stunting has already been rolled out in 260 districts across 34 provinces and aims to expand to an additional 100 districts in 2021 (See Box 1 for more information on StraNas Stunting).

In 2020, as many as 253 local leaders have committed to accelerate the prevention of stunting in their districts.

It has deployed more than 73,200 Human Development Workers (HDW) in villages across the country to harness the Village Fund (*Dana Desa*) for stunting prevention. HDWs are present in 98% of the targeted districts. As many as 32,000 HDWs are now actively using the eHDW app to conduct social mapping and measure village convergence.²

In addition, the strategy has tracked spending on stunting at up to 20 government ministries.

Successful local initiatives that reduce stunting and improve maternal and child nutrition can serve to both inspire and provide the impetus to trigger knowledge sharing and 'know-how' exchange for national and local leaders.

Many such local experiences, however, remain undocumented or are not documented in a manner conducive to effective learning.

This book aims to rectify that.

It features successful local initiatives, best practice examples and provides a "how to" guide to cut stunting rates locally to reduce stunting nationally.

The stories have been chosen to inspire, inform and influence others to join the march towards ending stunting in Indonesia (See Box 2 on how the stories featured were selected).

They inspire us. We hope they inspire you too.

1 Indeed, Indonesia's stunting rates are declining - in 2000 chronic malnutrition was at 40% (Frankenberg & Thomas, 2000), and according to Riskesdas, in 2007 at 36.8%, in 2013 at 37.2% and in 2018 at 30.8%. Recent SSGBI-SUSENAS data in 2019 reported national stunting prevalence at 27.7% (NIHRD, 2007, 2013, 2018, 2019)

2 The HDW measures village convergence through a scorecard that focuses on key nutrition interventions in the sectors of health and nutrition, Water, Sanitation and Hygiene (WASH), social protection and early childhood education and development (ECED).

Box 1: The National Strategy to Accelerate Stunting Prevention

In Indonesia, the prevalence of stunting (affecting nearly 7 million children under the age of five) has been slowly decreasing in the last decade. However, stunting prevention efforts have not been effectively implemented for many years. In addition, the planning, budgeting, implementation, and monitoring and evaluation of nutrition-specific and -sensitive interventions have not been fully coordinated at all levels. These have been recognised as key challenges in the efforts to address and prevent stunting. In addition, the lack of local capacity at district, sub-district, and village levels are constraints that still need to be addressed (*Sekretariat Wakil Presiden Republik Indonesia, 2019*).

In recognition of the need to tackle stunting, the country launched the National Strategy to Accelerate Stunting Prevention (StraNas Stunting) in August 2017. This is also mandated in the Presidential Decree No. 72/2021 on Acceleration of Stunting Reduction. The StraNas Stunting consists of five pillars: 1) Commitment and vision of the state's highest leaders; 2) National campaign focusing on behavior change; 3) Convergence, coordination and consolidation; 4) Food security policy, and 5) Monitoring and evaluation.

To improve the convergence of multisectoral interventions for stunting prevention, a geographically-focused plan was designed to create awareness and commitment for StraNas Stunting implementation in 100 districts in 2018. Those districts were selected based on a number of criteria which includes the number of children under the age of five, prevalence of stunting and wasting in children under the age of five, and poverty prevalence. The number of districts will be added gradually each year to reach all 514 districts in 2022. In 2019 and 2020, the strategy was rolled out in 160 and 260 districts respectively. In 2021, StraNas Stunting will be implemented in 360 districts.

StraNas Stunting aims to drive the convergence of national, regional, and village stunting prevention programs. It also aims to ensure better coordination and better budget allocation of stunting prevention programs. In addition, StraNas Stunting supports priority nutrition intervention activities, in particular those related to improving the coverage and quality of nutrition delivery services among the first 1,000 days households. StraNas Stunting brings together line ministries or agencies, professional organizations, academicians, civil society organizations, and private sectors in its effort to address stunting.

A set of Convergence Actions has been established to increase the integration of nutrition interventions (both nutrition-specific and -sensitive interventions and across administration levels) and to align all available resources. The Convergence Actions consist of eight activities:

ACTION #1

Identification and analysis of current situation

ACTION #2

Planning activities to improve integrated nutrition interventions

ACTION #3

Stunting summit (*rembuk stunting*) at district/city level

ACTION #4

Regent/Mayor regulation on the role of the village in integrated nutrition interventions

ACTION #5

Human Development Workers (HDW) coaching

ACTION #6

Stunting data management system

ACTION #7

Stunting measurement and publication at the district/city level

ACTION #8

Annual performance review

Through new fiscal instruments such as the *Bantuan Operasional Kesehatan* (BOK) or Health Operational Assistance Fund, the StraNas Stunting enables the government to incentivize districts to implement multisectoral programs. Annually, Bappenas coordinates with the Ministry of Finance to track spending on stunting at up to 20 ministries. In addition, the government conducts budget and development performance evaluation on stunting reduction.

The StraNas Stunting is also set to strengthen citizen engagement and empower villages to hold sector line ministries and district offices accountable for the delivery of nutrition interventions. The StraNas Stunting provides incentives to roll out innovative tools such as the Village Convergence Scorecard to track frontline delivery of priority nutrition interventions.



Box 2: How the success stories were chosen

The success stories featured in this book were drawn from a shortlist. Selected central government ministries, as well as 73 local governments were invited to share best-practice examples, including from districts where stunting prevalence has improved.³ But also more than two dozen academics, non-governmental organizations, civil society organizations, private sector and development partners, were consulted.

In addition, based on discussions with field and sector experts inside and outside the World Bank, selected stakeholders or districts were invited to submit best practices for consideration.

The determination of criteria⁴ for submission and requests for stories took place between September and November 2018. The team received more than 40 submissions of local initiatives from November 2018 to February 2019.

Shortlisted entries were reviewed further, followed by additional data request and interviews. For

most stories, the team conducted field visits to observe the initiatives and activities, and to interview implementers and beneficiaries. The team visited Kota Samarinda, Kota Surabaya, Nganjuk District, West Lombok District, West Sumbawa District and DIY Yogyakarta between January and April 2019.

A total of 15 stories showcasing successful initiatives from multiple sectors were selected to be featured in this book. While a few of the best practices and lessons learned selected started with the implementation of the GoI's StraNas Stunting, for the most part, the stories included in this book predates StraNas Stunting. After an initial full draft was completed, a writers' workshop was held in December 2019 to finalize the draft.

Most of the stories featured were written before the COVID-19 pandemic happened and as such, do not reflect operation conditions during COVID-19.

Author's Comments : Addressing stunting in a global pandemic

Much like the rest of the world, the COVID-19 pandemic has affected Indonesia significantly and disrupted the delivery of many services including health, water, sanitation and hygiene (WASH), and early childhood education and stimulation.

Research from the National Institute of Health Research and Development (NIHRD) found that the continuity of essential health services was disrupted during the COVID-19 pandemic, including public health efforts in community health centers (*Puskesmas*).⁵

About 73% of *Puskesmas* maintained same service hours as before the pandemic, but patient visits have reduced. Nearly 84% of *Puskesmas* reported a reduction in the number of patient visits.

The *Posyandu*, a smaller community health post under the supervision of *Puskesmas*, forms the backbone of Indonesia's primary health care system for pregnant women, mothers, and children. It is the first, and in many cases, the only point of access to healthcare for most villages in Indonesia.

3 Determined by comparing 2007 and 2013 stunting prevalence from Riskesdas data. For detailed comparison methodology, see (World Bank, 2017b).

4 For a full list of submission criteria, please refer to Annex 2.

5 Using a cross-sectional, qualitative, rapid survey design, the researchers sampled over 4,798 *puskesmas* between April and May 2020 (Musadad, 2020)

COVID-19 has severely hampered the *Posyandu*'s services. Nearly half (43.5%) of *puskesmas* have stopped *Posyandu* services and about 37% have reduced *Posyandu* activities in their catchment area. This has dire implications for key services such as immunization, growth monitoring, micronutrient supplementation and antenatal care – the bulk of which are delivered through the *Posyandu*.

Already, Indonesia is seeing the adverse result of the disruption to essential health service delivery. More than half (57%) of *Puskesmas* reported a decrease in immunization coverage. About one third of *Puskesmas* have suspended home visits to households with stunting or malnutrition. Another one third of *Puskesmas* reported not visiting households with pregnant women.

Research has shown that access to nutrition-specific and nutrition-sensitive services, many of which are facing service disruption, are vital to the continued fight against stunting (Lancet, 2013).

Applying the StraNas Stunting framework to the COVID-19 crisis's impact on stunting, COVID-19 may affect stunting through four channels: loss of income, rise in food prices, limited ability to deliver health services, and a decline in non-COVID-19 spending on basic service delivery (Upcoming publication).

Specifically, the main impact of an income or price shock is a decline in food security, which would in turn affect the quantity and quality of food consumed and stunting.

Front-line service delivery, particularly via *Posyandu* and the early childhood education and development program *Pendidikan Anak Usia Dini* (PAUD), has been disrupted by the lockdown, and this directly affects the delivery of key health and education services.

There have also been cuts in spending on water, sanitation, and hygiene (WASH), a nutrition-sensitive intervention, due to the diversion of resources to tackle COVID-19.

The Government of Indonesia's initial COVID-19 mitigation strategy include nutrition-sensitive measures such as increasing beneficiaries for food assistance and social assistance programs (World Bank, 2020). However, increasing the number of beneficiaries alone might not result in much mitigation of COVID-19 impacts on stunting.

Stunting reduction calls for a convergent effort through both the service delivery interventions as well as interventions such as conditional cash transfers.

As the pandemic situation unfolds, the ability of key health services to resume as before the pandemic faces great uncertainty.

Despite the challenges, some *Puskesmas* are finding new ways to ensure continued service delivery in the midst of the pandemic.

Classes for pregnant women are held via Zoom platform.

Puskesmas visiting hours are staggered to accommodate childhood immunizations affected by *Posyandu* closure.

And in Samarinda City, the innovate clustering format (see "Samarinda: A river dolphin swims to the rescue") allows midwives to continue monitoring and communicating with pregnant women in their clusters through platforms such as WhatsApp. Antenatal care visits are still conducted, but by appointment to maintain physical distancing.

The impact of COVID-19 has been severe on the livelihoods of most Indonesians. For the first 1,000 days of life households, the impact of COVID-19 extend beyond income loss and food security. It affects the heights and minds of the next generation.

CHAPTER 2

BEST PRACTICES: STORIES FROM THE FIELD



SAMARINDA: A RIVER DOLPHIN SWIMS TO THE RESCUE



Dotted among the rice fields, the bustling roadside stores, and homes of Samarinda City you will find the vibrant community of Bukuan. Busy with laborers, traders, and miners, it is a diverse community with different cultures, diets, and habits. Despite their differences, they face a common problem: many of their children suffer from stunting. Not only that, money for combating the scourge of chronic malnutrition is tight.

Facing budget cuts in 2016, the head of the local health authority, decided it was time for change. That is when the Mahakam River dolphin, locally named *Pesut Mahakam* and the symbol of East Kalimantan Province, swam into view, lending its name to an initiative to merge a maternal health program and a nutrition program to tackle stunting. The outcome was a single initiative with a common goal: improving the health and well-being of mothers and children with integrated services and staff.

The initiative was the brainchild of dentist Drg. Rika Ratna Puspita, head of the local community health center, who saw a way to do more with less.



"We faced a significant budget cut for the past three years. Thus, there was a city-wide mandate for innovations to ensure continued service delivery," said Endang Liansyah, the Assistant City Secretary for Samarinda.

Drg. Rika Ratna Puspita answered the call of the city authorities to innovate.





MERGING THE NEEDS OF MOTHER AND CHILD

First, she rolled two separate maternal health and nutrition programs into one (See Box 3).

Then she created teams of midwives, nutritionists, and community health volunteers (*kaders*) to work together to look after the health and nutrition needs of a cluster of pregnant women, mothers, and their children in a particular area (See Box 4).

They worked together and planned together, coordinating to ensure an efficient and effective approach to track, counsel and support mothers and their children in health and nutrition. The aim is to track children intensively for the first and most crucial 1,000 days of their lives when they are at greatest risk of stunting. The program then continued to monitor the children through the posyandu until the children turn 5 years of age.⁶



"Because of the clustering system, we can coordinate with the other midwives, nutritionists and kaders more efficiently and pass on important information. For example, we had a case of a stunted child whose parents were frequently on the move due to work. But because of the clustering system, we were able to keep track of him and the nutritionist from his new cluster was able to continue

the home visits and ensure continuation of good caring practices," said Dr. Siti Wulandari, a doctor from Puskesmas Bukuan.

The closer bond between midwife, nutritionist and community health volunteer created by the new merged program proved critical with the volunteer *kaders* gaining valuable insight and expertise from working alongside healthcare professionals. In addition, they worked closely together to track and support mothers and children at greatest risk.



"Before the Pesut Mahakam Program started, we faced challenges in reaching out to the community and getting the community to come to us, the healthcare providers," according to Drg. Rika Ratna Puspita.

"In addition, there was limited knowledge and awareness of stunting among the kaders and community. The kaders were not aware of the importance of the first thousand days of life, and simply did not know how to improve the nutrition of the mothers and children in the community."

The secret to the new program's success was also down to taking a "life cycle" approach, keeping in touch with mothers and children at different stages of development.

⁶ See Box 5 at the end of this story for step-by-step guide to starting the *Pesut Mahakam* Program.



Box 3: Cooking up new ideas

The *Pesut Mahakam* Program integrates two separate programs – a maternal health program named *Bidadari Ramah*⁷ (Friendly Fairies) and a nutrition program named *POZISI* “*Pondok Gizi Terintegrasi ASI Eksklusif dan Perilaku Hidup Bersih Sehat*” (Integrated Exclusive Breastfeeding and Clean and Healthy Lifestyle Nutrition Post).

It aims to reduce high incidences of maternal fatality and malnutrition problems, including stunting prevalence.

The *Bidadari Ramah* Program provides antenatal care and postnatal care services, in addition to pregnancy education and counseling.

It provides scheduled home visits to the pregnant women, including pregnant women who are hard to reach, or unregistered.

The *POZISI* Program, on the other hand, provides counseling services on exclusive breastfeeding,

early initiation of breastfeeding, infant and young child feeding and clean and healthy lifestyle.

The *Pesut Mahakam* Program convenes every three months in a space that allows the young children to play safely within reach of their mothers, with toys provided by the *Pondok Gizi*, while the mothers learn about exclusive breastfeeding, and complementary feeding from the *Puskesmas* nutritionist. In a nearby room, pregnant women are gathered to learn about pregnancy, healthy diets, additional nutrition requirements in their pregnancy and early initiation of breastfeeding among other topics. As the space bustles with the sound of laughing children and women, the highlight of the event for most mothers is the cooking lessons by *kaders* which allows the mothers to observe how healthy complementary food using locally available foods can be prepared. During the cooking demonstration, the *kaders* share their award-winning recipes, and the smiles of toddlers provide wordless testimonies of the delicious recipes.

⁷ *Bidadari Ramah* is an acronym for “*Bidan dari desa mandiri rajin periksa mama hamil*” or village midwife independently and diligently examining pregnant women.



Box 4: Health teams caring for groups of mothers and children

The success of the program lies in the innovative “clustering” format. In fact, the *Pesut Mahakam* Program is the first to use this approach, where midwives and nutritionists are assigned to clusters of pregnant women, mothers, and children. Different from clustering based on administrative functions, the clustering format employed by the program accounts for the local characteristics of the area, the geographical reach and considers potential external supporters such as private companies. As a result, the clusters are grouped according to *Posyandu* catchment areas, and one cluster consists of four *Posyandu* for children under-five. The clustering format enables the midwives and nutritionist to ensure program coverage in a large area while also allowing them to gain access to hard-to-reach households with pregnant women and young children and provide tailored individual counseling through the first 1,000 days of life. It also builds camaraderie between midwives and nutritionists from the different *Posyandus*.

Specifically, the clustering is employed according to program arm. For the maternal health arm (*Bidadari Ramah* Program), the peri-urban area is divided into eight clusters, of which one midwife or nutritionist is assigned to each cluster; one cluster can consist of 150 to 300 households. For the nutrition arm (*POZISI*) of the program, the peri-urban area is divided into 3 clusters, with one midwife or nutritionist assigned to each cluster. With this clustering format, the midwife or the nutritionist provides oversight for their own cluster while before, a midwife coordinator would provide oversight for the entire region. The clustering system also provided the advantage of systematic data collection. During the *Program Indonesia Sehat dengan Pendekatan Keluarga* (PIS-PK) data collection period, *Puskesmas* Bukuan completed the data collection in an impressive three months – others required one to two years. *Puskesmas* Bukuan became the pilot site for the *Indeks Keluarga Sehat* application⁸, an app that visualized PIS-PK data for the city of Samarinda.

8 *Indeks Keluarga Sehat* is a mobile-based application that helps enumerators conduct data collection for the PIS-PK Program or Healthy Indonesia through the Family Approach or. The PIS-PK Program is MOH's key intervention which was developed with three main objectives: (i) improving family access to a comprehensive healthcare package covering prevention services, health promotion, basic curative care and rehabilitation; (ii) supporting the local governments to achieve the Minimum Service Standards (MSS) by improving access to health care and health screening; and (iii) improving community awareness to become a JKN member. The first step to implementing PIS-PK is a visit by *Puskesmas* staff to each family to develop a database of 12 health indicators for all families in its catchment area. Analysis of the data will produce a *Indeks Keluarga Sehat* (Healthy Family Index) for village, sub-district, district, province, and national level. The *Puskesmas* will plan and conduct follow up home visits to address identified risks through behaviour change communication and by facilitating appropriate clinical care, as needed.

TRACK, SUPPORT AND COUNSEL

Firstly, it tracks pregnant women, providing group counseling, home visits and supplementary feeding for those with chronic energy deficiency.

Secondly, each high-risk pregnancy is tracked more intensively and a pregnant woman receives home visits from both a midwife and *kader*.

Thirdly, pregnant women are provided with the names and contact number of their appointed midwife to contact during emergencies.

Fourthly, babies born with low birth weight are more regularly and carefully monitored for their growth. Growth promotion is provided in group counseling.

Finally, mothers are invited to cooking courses and education on water, sanitation and hygiene. Supplementary feeding, using locally available food, is also provided for malnourished children.

PROMISING RESULTS

A significant investment in time and effort have yielded promising results.

At the start of the program in 2016, there were 13 children who had acute malnutrition. After close to a year of follow-up, 12 children achieved normal weight.

When the focus on acute malnutrition started shifting to chronic malnutrition, in part due to the National Strategy to Accelerate Stunting Prevention (StraNas Stunting), the program started focusing on height monitoring.

Twenty-four children aged 1 to 5 were found to be short for their age (height for age z-score ≤ -2 Standard Deviation (SD)) in early 2018. By October 2018, 14 of these children had improvements in their stature and had moved out of the high-risk zone.



The program's focus on improving nutritional status of chronic energy deficient (CED) pregnant women has also shown impressive results.

In 2016, there were 34 women who had chronic energy deficiency. Three of the resulting children born were reported as being low birth weight by the midwives who kept track of the women through the program. The infants were followed up through the nutrition arm of the program, and all three infants had improvements in weight.

In 2017, 38 pregnant women had CED, but due to the interventions delivered through the program, none of the resulting births were reported to be of low birth weight.

Many factors contribute to the success of the *Pesut Mahakam* program: strong local governance at the *Kelurahan* and *Kecamatan* level; supportive Health Dinas, committed *puskesmas* head and staff including nutritionists and midwives, and dedicated, proactive *kaders* who provide much needed community mobilization.



"Sometimes I face the challenge of getting the children to return for the following sessions at the POZISI or Posyandu because the mothers felt discouraged to learn that their children are malnourished. But I persevered and conducted home visits instead, to ensure the children continue to receive the care they needed", explained Sukinah, a *kader* at *Kelurahan* Bukuan who was also recently appointed as a member of the inaugural *Forum Peduli Kesehatan Anak* at Kota Samarinda.



EMPOWERING KADERS

The commitment and motivation of the *kaders* was also reiterated by Dr. Siti Wulandari. According to Dr. Siti Wulandari, it was the *kaders* who first approached the *Puskesmas* and midwives to ask for permission to conduct home visits when they discovered children who had dropped out from the *Posyandu* program.

Now, with the *kaders'* improved understanding on maternal and child health and nutrition following the implementation of the program, the *kaders* are more confident in carrying out their duties during *Posyandu* activities.

Empowering the *kaders* have also given the peri-urban area indispensable health advocates – some *kaders* have become the ambassador for their local community health development efforts, and others provided a catalyst in the community for exclusive and continued breastfeeding. The *kaders'* ability to provide effective outreach has greatly benefited the *Puskesmas*, to the extent of assisting in the PIS-PK surveys.

The *Pesut Mahakam* Program also features a strong public-private cooperation. Each cluster has the backing of local private companies. As part of their corporate social responsibility program, these companies provide space or seed money for the establishment of the programs. Many continue to be actively involved in the program, joining coordination meetings that are held periodically.

While the active public-private sector partnership contributes to the sustainability of the program at *Kelurahan* Bukuan, the program continues to require funding and supervision from the local government to ensure long term sustainability.

The *Puskesmas*, midwives, nutritionists and sanitarians also continue to need supervision from the Health Dinas – for example for data analysis to inform decision-making at the local level. Strong advocacy regarding the importance of nutrition interventions – both specific and sensitive – is

pivotal to ensure continuous local budget allocation for innovative programs such as the *Pesut Mahakam* Program.

With promising results, and interventions that are tailored to the local needs, the *Pesut Mahakam* Program can be scaled-up to address maternal and child health and nutrition issues in *Kota Samarinda* and surrounding districts.

To do this, and to do it well, a multi-sectoral platform at the city-level which addresses stunting *prevention* is needed. This is where support from the Gol's StraNas Stunting can make critical contributions (see Box 1 for more information on StraNas Stunting).

While the program is very much driven by the health sector, cross-sectoral coordination happens with a few local *Dinas* or local government office such as the Women's Empowerment and Child Protection *Dinas* and Population and Family Planning *Dinas*. Wider cross-sectoral coordination involving the city administration and other sectors such as Public Works for example, is still much needed for further improvement.

CONCLUSION

The program plans to go from strength to strength, deepening its impact and widening its reach. It is now hoping to track every child for the first 1,000 days of its life.

For the time being the program, for budget reasons, is limited to tracking mothers with CED and babies with low birth weight.

But the ambition to do even more to drive down rates of stunting is there.

More support from the city, provincial government and better coordination between local government and health teams helping clusters of mothers and children could turn that ambition from vision into reality.

Much like the river dolphin after which the program is named, *Pesut Mahakam* swims more easily with the tide than against it.



Box 5: Step-by-step guide to starting the *Pesut Mahakam* Program

The following describes steps to starting the *Pesut Mahakam* Program:

- 1) Building local or community political will
 - a) Identify a champion to advocate nutrition and develop a vision
 - b) Establish goal and purpose of program
 - c) Channel resources and establish commitment for the program
 - d) Hold village or community meeting to:
 - i) Advocate goal and purpose of program and confirm vision
 - ii) Create awareness of health problems and health risks
 - iii) Village or community meeting should involve Village/*Lurah* Head, Village/*Kelurahan* Government official and other sectors in the *Kelurahan* (e.g. Women's Empowerment and Child Protection, Population and Family Planning)
 - e) Upon establishing local commitment, clearly identify roles for each stakeholder
 - f) Follow up initial meetings with specific program planning (how, why, what, when, where, who)
- 2) Contact the higher policy maker in the region: *Camat*
 - a) Inform result of village or community meeting
 - b) Request for support (e.g. financial, legal, administrative)
- 3) Contact local corporations or private companies in the area
 - a) Explain goals and purpose of the program and areas of assistance
 - b) Encourage local corporations' or private companies' involvement in program
 - c) Acknowledge the public-private partnership and the local corporations/private companies' contribution to the program
- 4) Develop and strengthen *kaders'* knowledge and skills
 - a) Identify strengths and weaknesses of *kaders*
 - b) Provide capacity building for *kaders*, especially program-related knowledge and skills
- 5) Implement the program
 - a) Identify beneficiaries for maternal health and nutrition arms
 - b) Identify clusters
 - c) Assign midwives, nutritionists, and *kaders* to each cluster
 - d) Track beneficiaries, provide home visits and tailored interpersonal counseling, monitor progress on a monthly basis
 - e) Conduct *Posyandu Balita* once a month and *Pondok Gizi* and midwife cluster meetings once every three months (including food demonstration / cooking spectacle sessions, and counseling sessions)
 - f) Conduct midwives' meetings once a month (provide counseling, information on early initiation of breastfeeding, and others)
- 6) Monitoring and evaluation of program
 - a) Monitor implementation of program
 - b) Check continuity of program and activities
 - c) Conduct *kader* meeting every six months as feedback mechanism
 - d) Improve the program
 - e) Prepare monthly reports
- 7) Sharing progress of program
 - a) Share the progress of the program to all contributing sectors, including *Camat* and *Lurah* Government, corporate/private companies
 - b) Share program results and outcomes. Encourage continued support of all contributing sectors for program sustainability and community health development

SURABAYA: CHANGING HEARTS, MINDS AND DIETS THROUGH GAMES AND SONGS



Great ideas need great champions.

In Java's bustling port city of Surabaya, Chief of the local Family Welfare Movement, Siti Nuriyah Zam-Zam Sigit Sugiharsono, 60, came across an idea so good she wanted to share it with everyone.

The idea, rooted in evolutionary and environmental psychology, was to inspire pregnant women and mothers through games and songs at community

health posts (*Posyandu*) across the city to eat healthily, to breastfeed and to give their children a balanced diet. The idea was simple: to make mothers feel good about changing their behaviour to improve their health and that of their children.

The idea was based on a concept first introduced by one of the world's most renowned public health schools, The London School of Hygiene and Tropical Medicine (LSHTM).

The approach, known as Behavior-Centered Design (BCD), combines evolutionary and environmental psychology and best marketing practice to design and test imaginative and provocative activities to encourage changes in behaviour.

Promoted on Java as part of the *Baduta* program, implemented by The Global Alliance for Improved Nutrition (GAIN), a Swiss-based foundation, Siti Nuriyah Zam-Zam Sigit Sugiharsono saw the potential of these activities almost immediately.

The secret of the approach's success was to make the activities relevant, easy to understand, fun and positive.

Health workers and *kaders* play games, especially designed to encourage behavioural change, with mothers and pregnant women in the *Posyandus*.

While each game educates, the main purpose of the games, known as “emotional-demonstrations or emo-demos” is to create healthy habits. The goal is to trigger participants to remember or to associate certain emotions or interests with desirable or undesirable behaviours.

The potential of the emo-demos as part of an innovative infant and young child feeding (IYCF) program rolled out as part of the GAIN *Baduta* program is enormous.

It reached around 50,000 individuals monthly and transformed the health and well-being of families across the city.

The *Baduta* program aims to improve child growth by enhancing the nutrition of pregnant women and children under two years of age. It also aims to reduce the prevalence of infectious diseases. It has been rolled out in five districts of East Java: Bondowoso, Jember, Probolinggo, Trenggalek and Surabaya (Keats et al., 2019). The “emo-demos” are very much at the heart of the program.

Running in at least 1,600 *Posyandus*, the emo-demos have proved a runaway success since they were launched in the city in 2018.

The only problem, at the start, was that the emo-demos only covered half the city.

This placed Siti Nuriyah Zam-Zam Sigit Sugiharsono, in a predicament.⁹

After first learning about emo-demos when GAIN introduced the program to the city in June 2018, she received training and went on to train others.

Soon she was championing the cause, eager to see all mothers in the city having access to the emo-demos.



“I am like a mother of children from 31 sub-districts in Surabaya. Seventeen receive emo-demos, while the others do not. This is a good program, so I felt sad for those not receiving emo-demos”, she said.

She was determined to do something about it.

So, she proposed to the City Health Office to use the city budget to train health volunteers (*kaders*) from the non-intervention areas. As non-intervention areas, the 14 sub-districts had initially not been eligible for the emo-demo toolkits.

HELPING HAND FROM HAND-WRITTEN MATERIALS

Siti Nuriyah Zam-Zam Sigit Sugiharsono did not let this stop her.

She convinced the *kaders* to create emo-demo toolkits using their own resources. Siti Nuriyah Zam-Zam Sigit Sugiharsono encouraged them to reproduce the tools by hand, without using any printing equipment. Her enthusiasm was infectious, motivating the *kaders* to roll out the program in their areas.

All 31 sub-districts now offer the emo-demo program but 14 are using their own handmade materials and are supported by the city health office budget.

Thanks to her relentless efforts, *Posyandu* ‘Kenanga II’ in Simokerto sub-district is one of the *Posyandu* in the non-intervention areas that was finally able to deliver emo-demos successfully. According to the *kaders*, the activities in the *Posyandu* became livelier with the introduction of emo-demos, as more mothers were eager to attend the monthly event.

9 Siti Nuriyah Zam-Zam Sigit Sugiharsono’s story first appeared in GAIN’s most significant change stories series.

CHANGING HEARTS AND MINDS

Changing hearts and minds is not easy. It requires people to change habits while old habits die hard.

Research in 2013 had shown that social status and reputation were found to be strong drivers of parenting amongst the target population. This knowledge influenced the program's behavioural change strategy and was reflected in messages targeting mothers on TV and on social media. This in turn was reinforced by games and songs during the emo-demos in *Posyandus*.

The strategy's brand identity *Rumpi Sehat* (Healthy Gossip) focuses on four key target behaviours.

Firstly, improving the eating habits of pregnant women so that they increased their daily animal

protein intake such as *hati ayam*, *telur* or *ikan* - *ATIKA* (chicken liver, eggs or fish).

Secondly, encouraging exclusive breastfeeding until 6 months and reducing infant formula feeding.

Thirdly, increasing dietary diversity of homemade complementary food for infants 6-23 months of age.

Fourthly, reducing unhealthy snacks given to children through the promotion of healthy alternatives.

Simple messages were developed (Figure 2) and disseminated through social media, text messages, interpersonal communication and four advertisements for national television.

Figure 2: Baduta behavior change messages




Sources: Keats et al., 2019

The behaviour change messages were further reinforced in the community through emo-demo activities carried out at *Posyandus*.

Inserting the emo-demo into the waiting time of the mothers at the *Posyandu* proved to be a highly effective strategy, maximizing exposure of key messages to the target audience. The emo-demos also attracted a large crowd at the *Posyandu* because of the fun activities, catchy songs and phrases, further increasing the program's reach.

Figure 3 shows examples of emo-demo how-to-sheets.

 “While traditional health education is informative, it is passive, and the participants can quickly tune out. Emo-demos on the other hand are highly participatory. They involve ‘aha’ or attention-grabbing moments and of course emotional stimulation. These characteristics make emo-demos highly memorable and the messages are more tangible so that participants are more likely to retain and try out the new behaviours,” said Ravi Menon, the previous Country Director of GAIN Indonesia.

REACHING OUT TO MORE MOTHERS ACROSS THE CITY

Despite an initial target of two years to deliver emo-demos throughout *Posyandus* in half of Surabaya, GAIN successfully achieved the targeted emo-demos coverage within a year.

This meant delivering emo-demos to 1,616 *Posyandus* covering 86 villages and 17 sub-districts, and delivering key behaviour change messages to 50,000 mothers or caregivers at the *Posyandus* every month during the first year of program implementation.

As many as 3,375 sets of emo-demo tools were distributed to *Posyandus* in 33 primary health centres and 558 emo-demo trainers, consisting of health officers, government representatives, and academicians were trained to equip village *kaders* with emo-demo delivery skills (Pamungkas, 2019).

Recognizing the importance of the messages that emo-demos bring to the target audience, the Surabaya City Government, including Surabaya District Health Office, allocated resources to scale-up emo-demos to non-intervention areas.

Figure 3: Examples of emo-demo visuals



Sources: Keats et al., 2019

The *kaders* complemented the city government's support with hand-made emo-demo tools and together, the local government and community leaders work hand-in-hand to ensure no *Posyandu* – and community – is left behind when it comes to emo-demos.

Since May 2018, emo-demo have been scaled up to be implemented in almost 4,500 *Posyandus* throughout the five intervention districts of Bondowoso, Jember, Probolinggo, Trenggalek and Surabaya. Until the end of October 2018, GAIN has provided training to 163 IYCF emo-demo trainers at the district level, facilitated training for 1,594 village-level trainers and 9,065 *Posyandu kaders*. GAIN has also distributed emo-demo aids for three of the emo-demo IYCF modules to all *Posyandu* in the intervention area.

Scaling-up the program is challenging given the high training costs.

An estimated IDR 50 million (approximately USD 3,500) is needed to provide training for 50 persons per module and per *Puskesmas*. In addition, refresher trainings are also required.

Given the popularity of the program, GAIN frequently receives training requests from other non-intervention districts. As the training costs could prove to be prohibitive to further scale-up, GAIN actively encourages local governments to adopt and scale-up the program in their own districts.

Meanwhile, GAIN uses online video tutorials - which were initially prepared as an accessory for training - to conduct refresher training. According to GAIN, randomized controlled trials have shown that screening the videos three times helps participants to retain as much as they would in face-to-face training.

Currently, all 12 emo-demo IYCF modules have been adapted to the East Java's *Posyandu* guidelines and nutrition and health promotion teaching materials for 15 universities and higher education institutions in Indonesia. In 2017, GAIN facilitated adoption through a series of workshops and technical assistance.

In 2019, GAIN held a competition to develop new module content and as many as 12 modules were selected from amongst participants from academic institutions and community health centers.

Innovative, effective and scalable programs such as the emo-demo could greatly support Pillar 2 of the Gol's StraNas Stunting, which focuses on Behavior Change Communication (BCC).

CHANGE IN MOTHER AND CHILD HEALTH

An evaluation of *Baduta* shows that the program, of which the emo-demos are an integral part, has borne fruit.

There has been a significant increase in the rate of exclusive breastfeeding and a reduction in the use of pre-lacteal foods.

There has been a substantial rise in the proportion of children aged 6 to 23 months consuming iron-rich foods.

There has been a pronounced increase in children aged 6 to 23 months consuming an adequate number of food groups.

More mothers have better knowledge about the benefits of exclusive breastfeeding (Keats et al., 2019).

The results speak for themselves.

So does the enthusiasm, laughter, and camaraderie amongst the mothers clapping and singing during an emo-demo in the city.

The emo-demos have not just changed hearts and minds. They have helped to change the health of its mothers and children for good.

That, in no small part, is down to one of their leading champions: Siti Nuriyah Zam-Zam Sigit Sugiharsono.



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NGANJUK: EMPOWERING VILLAGE COMMUNITIES TO BOOST HEALTH AND WELL-BEING



With its volcanoes, dense forests and rice paddies, the villages of Eastern Java can feel remote. Many are at least a day's drive from the capital Jakarta. Among them is a village like many others. But it is a village with a difference. It is a village which has become a model for community empowerment in Indonesia's drive to reduce stunting in children.

Jati Kalen, in Nganjuk district, has become a byword for community empowerment in Indonesia's push to improve maternal and child health. The community's empowerment was initially triggered by the *Bidan* (village midwife), Sri Murti.

Back in 2006, attendance and participation by pregnant women and mothers in activities at the local *Posyandu* (community health post) was sporadic at best.

There was little active participation by the community. Most women visited the *Posyandu* merely to get their children weighed or immunized.

There was a sense among the community that the

Posyandu belonged to the *kader* (health volunteers) and midwives, not to the villagers themselves.

The volunteers did everything they could to encourage mothers and caregivers to bring their children to the *Posyandu*. They conducted home visits for children who missed *Posyandu* sessions to be weighed and measured.

Attendance rates¹⁰ improved but participation during *Posyandu* sessions was still largely passive.

Mothers returned home after children had been weighed and did not remain on for counseling sessions.

Attendance also dropped drastically after the month of August when most events, such as Vitamin A administration and National Day celebrations are held.

In 2010, the midwife Sri Murti, along with the community health volunteers in the village, decided something had to be done.

10 The percentage of children weighed (out of all children in the catchment area) averaged at 88%, compared to 71% the year before.



It was time to give the community a voice, a say and a role in running activities to promote maternal and child health. The village has not looked back since.

Over the next three years, they worked with the women and mothers in the village to start planning the *Posyandu* activities for the next year. First, they talked to the local women to find out which activities and topics interested them.

Then they encouraged the local women to participate more fully in discussions, to make commitments and to solve problems as a community. The discussions also provided an opportunity for health workers and volunteers to reiterate how important regular attendance at health post events was to the health of their children.

As a result, when the *Taman Posyandu* concept was introduced in Nganjuk district in 2012, the *Posyandu* at Jati Kalen village was ready to embrace the challenge head-on.

The idea was simple: to empower the local community to shape events and activities in a way that met their needs. Ensuring events were fun and rewarding was key.

The emphasis was on activities and interactivity.

Children who completed their basic immunization were given certificates and took part in a 'graduation' ceremony during *Taman Posyandu* events.

Mothers who were late to the events, on the other hand were asked to perform a dance in front of the community. These light-hearted 'punishments' served as entertainment for the community, which increased the attendance rate of the *Taman Posyandu*.

The concept went from strength to strength as local women took on roles assisting the *kaders* with documentation and local complementary food preparation.

CONVERGENCE OF BASIC SOCIAL SERVICES

Nganjuk's adoption of the *Taman Posyandu* model began in 2012 following a push by national and provincial governments to make basic social services available to everyone.¹¹

The *Taman Posyandu* delivers three key basic social services: health and nutrition, early childhood development and parenting classes. Box 6 describes the criteria for establishing the *Taman Posyandu*.

Health and nutrition services are delivered through the *Posyandu* functions. Early childhood development services are delivered through the *Pendidikan Anak Usia Dini* (PAUD) program and parenting classes are administered through the *Bina Keluarga Balita* (BKB) program.

Held once a month, all services are delivered over the course of three to four hours in the morning.¹² A typical *Taman Posyandu* session at Nganjuk district starts with registration, group exercise, followed by the emo-demo session (see “Surabaya: Changing hearts, minds and diets through games and songs” for more information). After that, the mothers proceed to parenting class with the BKB *kaders* while the toddlers join the PAUD *kaders* for early childhood education and development activities. Lastly, the children and women receive the health services according to the *Posyandu* Five Tables system.¹³

All three services share the same location, typically where the *Posyandu* is held. However, the *Taman Posyandus* can also be held in village halls, sub-district halls and home of villagers.

By converging these services in one location, the program greatly improves accessibility and attractiveness of these services to the mothers and children in the community.



Box 6: *Taman Posyandu* criteria

A *Taman Posyandu* must first fulfil the criteria of having a *Purnama* or *Mandiri Posyandu* classification. The *Posyandu* must also offer one or more extra services, in addition to the usual Five Tables system.

The *Taman Posyandu* must also offer early childhood education and development services, also known as *Pendidikan Anak Usia Dini* or PAUD. PAUD aims to provide early stimulation for children between the ages of zero to six to encourage cognitive, physical and spiritual development.

A third requirement for a *Taman Posyandu* is the parenting class otherwise known as *Program Bina Keluarga Balita* (BKB). The parenting class aims to increase the skills, knowledge, and awareness of parents and carers in developing their child's cognitive, social emotional, physical and motoric growth through parent-child interactions. Classes are typically conducted by BKB *kaders* and the parents or caregivers are grouped according to their child's age.

11 Nationally, the integration of social services at the *Posyandu* started in 2011 when the Ministry of Home Affairs issued a regulation supporting the integration of basic social services in the *Posyandu* (Permendagri No. 19 Tahun 2011 Tentang Pedoman Pengintegrasian Layanan Sosial Dasar di *Posyandu*). These services included health and nutrition services, childhood education and development services, family economic improvement measures, food security and social services. In the same year, the East Java Provincial Government issued a regulation on holistic integrative development for early childhood in East Java (Peraturan Gubernur Jawa Timur No. 63 Tahun 2011 tentang Pengembangan Anak Usia Dini Holistik Integratif Provinsi Jawa Timur). Together with the support and partnership of the Family Welfare Movement or *Pemberdayaan dan Kesejahteraan Keluarga* (PKK) Leader in East Java, the Provincial Government developed and planned the *Taman Posyandu* Program for the East Java Province.

12 Only the PAUD events are held multiple times throughout the week.

13 Five-tables system refers to the typical arrangement in a *Posyandu*, where the tables represent the main activities carried out during a *Posyandu* event, e.g. Table 1 for registration; Table 2 for growth monitoring; Table 3 for recording; Table 4 for counseling and Table 5 for health services.



RESULTS OF EMPOWERMENT

Nganjuk's *Taman Posyandu* program has succeeded in improving participation and more importantly, increasing the community's understanding of the information being shared by the *kaders*. On average, 93% of children (out of all children in the catchment area) were weighed every month in 2019, compared to just 71% in 2006.



"The mothers now fill in the Buku KIA (maternity book), and KMS (growth monitoring card) along with the kaders. They discuss the results on the spot. They are quick to point any errors in entry by the kaders," Bidan Sri Murti explains.

The innovation, commitment and good practices at *Taman Posyandu Melati* of Jati Kalen village soon became known to the officers at the Nganjuk District Health Office (DHO). On their visit to the *Taman Posyandu Melati*, the officers were impressed with the response at the *Taman Posyandu*.



"The children and women were sitting calmly and patiently in a small, tight space. None of them were in a rush to head home, but instead, were very participative and fully engaged. There

was a sense of belonging, a sense that this Taman Posyandu belongs to my community and me," said Yudhie Suryanto, the head of the Health Promotion Section at the Nganjuk DHO. The officers at the DHO were quick to realize this was a winning formula.

REPLICATING A WINNING FORMULA

Hoping to sow and spread the seed of community empowerment across the district using the Jati Kalen model, the district officers organized internship sessions from other sub-districts and villages to Jati Kalen village.

Initially, only *kaders* from the other villages were assigned to the internship. But soon, the District Health Office (DHO) realized that a larger, cross-sectoral team is needed for effective uptake and implementation of the model in other sub-districts and villages. So they sent a team which consisted of the village and *camat Pemberdayaan dan Kesejahteraan Keluarga* (PKK) members, *Puskesmas* health promotion staff, village midwife, midwives coordinator, and *kaders* (all five) to Jati Kalen village for internship.

There, the team learned about cross-sectoral coordination, shared decision making for the villagers, and community empowerment.

Most of all, they observed first-hand how a simple act of involving the community in the planning and decision-making, could make such a big difference in participation and involvement of the women and children in the *Taman Posyandu*.

The DHO initially supported the internship sessions by providing transportation and food allowance for the learning teams using local government funds (APBD). But now, the DHO finds that village leaders have taken the initiative to start requesting for internship sessions, and are also funding the internship sessions using village funds. It is now increasingly more common for village funds to be used for stunting prevention programs, thanks to the GoI's *StraNas Stunting*.

During the study visits, the visitors were also challenged by the *kaders* at Jati Kalen village, explained *Bidan Sri Murti*.



"My *kaders* had asked the other *kaders*, if we can do it, why can't you?" she said.

This created healthy competition among the *kaders*, each striving to do their best. It also resulted in local innovations in each *Taman Posyandu* (see Box 7: "When villages innovate"), which serve to encourage community participation even further.

In 2012, an initial 145 *Taman Posyandus* were established in Nganjuk.

In 2018, the number almost doubled to 287 *Taman Posyandus*, of which 175 or roughly 61% of *Taman Posyandus* were performing optimally.¹⁵

By 2019, at least one *Taman Posyandu* was established in each village.

Box 7: When villages innovate

At *Taman Posyandu Flamboyan*, Gondang village, the *CERIA SEHAT* (*Cerdaskan Ibu Anak Sehat*) innovation stood out with its focus on addressing appropriate complementary feeding practices. Through the innovation, mothers and pregnant women are invited to bring a boxed lunch for their children and themselves to eat during a communal meal after the *Taman Posyandu* event. This creates an opportunity for the nutritionists, midwives and *kaders* to assess the appropriateness of the meals. More importantly, it provides a platform to learn and practice good infant and young child feeding. As a reward, the best prepared lunch box is showcased¹⁴ and the winning mother or pregnant woman receives a small gift, further incentivizing them to try their best for the next *CERIA SEHAT* event.

Another innovation highlight is the egg donation drive at *Taman Posyandu Bugenville, Kelurahan Kapas*. At this location, mothers are encouraged to donate raw eggs to the event. The donated eggs are then distributed to the participants of the *Taman Posyandu* through a random draw. In one event, as many as five women could receive up to 20 eggs which can then be used to feed their families. The head of the sub-district, Tri Basuki Widodo, finds the egg donation drive to be a practical way for them to contribute to the fight against stunting. "Cheap, economical, easily accessible and nutritious – this is our way to improve the nutrition of children under five in the village," added Dr. I. Made Dharmayukti, the head of *Puskesmas* Sukomoro. And this was even before international research confirmed the value of 'an egg a day' (Lutter et al., 2018).

14 The best lunchbox has adequate dietary diversity and included iron-rich meats and dairy products, carbohydrates, beans and grains, fruits and vegetables.

15 The *Taman Posyandu* is assessed according to four indicators: facility condition and diversity; *kader* performance, training and attendance; service frequency, and development (including cross-sector development) regularity. The indicators for all three components of the *Taman Posyandu* (*Posyandu*, PAUD and BKB) are assessed according to criteria of deficient (*kurang* or one tick (✓)), good (*baik* or two ticks (✓✓)) or very good (*sangat baik* or three ticks (✓✓✓)). A *Taman Posyandu* is defined as optimum when it obtains at least eight ticks (✓) and does not receive a criterion of deficient (or one tick (✓)).

COMMITMENT AND COORDINATION CRITICAL

Commitment, close coordination and good governance structure are critical to the successful uptake of the *Taman Posyandu* Program throughout Nganjuk district, given the many stakeholders involved (Box 8).

At the district level, the District Health Office, District Education Office and District Women's Empowerment, Child Protection and Population Office provide the supervision, training and oversight for the services delivered. Other stakeholders including the Regional Population and Family Planning Board, District Rural Community Empowerment Office, District Social Services Office, and Social Welfare Bureau were also involved in the development of the *Taman Posyandu* in Nganjuk district.

The strong leadership of the provincial and district leaders made the close coordination and convergence across such wide-ranging stakeholders possible.

The *Taman Posyandu* program in Nganjuk district has found various innovative sources of funding for its operations and activities. These include funding from the local government through local funds (APBD) and funding from the provincial government.

However, in recent years, due to the remarkable community empowerment movement which triggered important buy-in from the local leaders and community, the *Taman Posyandu* are increasingly receiving funds from *Alokasi Dana Desa* (allocated village funds), corporate social responsibility programs, and most importantly, the villagers' own donations.

Some *Taman Posyandu* activities, such as the 'Recycle Bank', where recyclable items are collected and sold, also provide funding for the *Taman Posyandu*. The villagers' contributions are used to buy small gifts and trinkets for the children and women to incentivize and improve community participation.



Box 8: Governance and management of *Taman Posyandu* in Nganjuk district

A permanent secretariat is set up in the district, sub-district and village to help with management and operations of the *Taman Posyandu*. Funded using village or *kelurahan* funds and backed by local regulations, each secretariat is led by their respective PKK leaders.

Routinely, the PKKs in the village, along with the village midwife, lead an evaluation to discuss issues and challenges, and share lessons learned after each *Taman Posyandu* session.

In addition, several key coordination meetings take place throughout the year to optimize the operations of the *Taman Posyandu*. The first is a *Taman Posyandu* Permanent Secretariat Coordination meeting, involving cross-sectoral stakeholders, which is held every three months to discuss results from the evaluation of the *Taman Posyandu* and decide on next steps. Another key meeting is an evaluation meeting which is held at least once a year, and again involves all relevant stakeholders. In addition, the *Posyandu* Working Team's (*Tim Pokjanal Posyandu*) multisectoral yearly evaluation at the sub-district level also includes *Taman Posyandu* activities assessment.

Optimizing the *Taman Posyandu* operations also meant that training must be conducted for all the actors in the *Taman Posyandu* Program, including the management team at the district, sub-district and village levels. Those trained for management in the district and sub-districts include the Health Promotion Staff from the *Puskesmas*, the midwife coordinators, village midwives, and PKK leaders at the district and sub-district level. In the village, the PKK leaders at the village level and two *Posyandu* kaders are selected for the Village Level *Taman Posyandu* Management Training each year. In addition, content-based yearly training sessions are also held for selected kaders, and this training includes topics on parenting class (BKB), Stimulation, Early Detection and Intervention for Growth and Development (SDIDTK), *Taman Posyandu* Mentorship, and emo-demos.

The district also regularly conducts comparison field visits between *Taman Posyandu* to improve the quality of *Taman Posyandu* operations.

COMMITTED VOLUNTEERS

In the village, the members of the PKK (Family Welfare Movement) manages the *Taman Posyandu* Program whereas trained *kaders* (typically *kader Posyandu*, *kader BKB* or *kader PAUD*) run the day-to-day operation of the *Taman Posyandu* Program.

The sense of ownership among PKKs and *kaders* is crucial to the successful implementation and continuity of the *Taman Posyandu* Program.

With a low turn-over rate of about 10% per change in village leadership, *kaders* in the district of Nganjuk have been known to serve for over 20 years.

OPENING THE DOOR TO COMMUNITY OWNERSHIP BOOSTS HEALTH AND WELL-BEING

The *Taman Posyandu* now include basic health, nutrition, early childhood education and development (ECED), food security and social assistance.

What makes it a success is that it allows flexibility. Communities, such as the villagers of Jati Kalen, are encouraged to include their own innovations, a true community-based program with strong local ownership.

What has succeeded in Jati Kalen has been replicated throughout the district.

The amount of *Taman Posyandus* have doubled.

New ideas have emerged, including the creation of a community recycling bank to raise money for the meetings and a healthy lunch making competition for mothers and children and pregnant women.

What sets Nganjuk apart is that they took the idea, saw it worked, and replicated it throughout the district.

They now have monthly excellent participation at the *Posyandus*, which is key to stunting reduction.

The Jati Kalen model, with the support of local government, has been replicated far and wide.

It may be a village like many others. But it is a village with a difference. It is a village that has made a difference in the fight against stunting.



WEST LOMBOK: A POSTER CHILD FOR COORDINATING THE FIGHT AGAINST STUNTING



Nestled under the fertile foothills of an active volcano and flanked by the sparkling waters of the Bali Sea, the district of West Lombok attracts visitors from far and wide. Some are tourists. Some are not. That is because West Lombok is remarkable for more than its beauty. It also has a proud track record of dramatically reducing rates of chronic malnutrition in children under five. Officials from across Asia-Pacific now travel here to learn from this success.

In 2013 around half of children under five (47%) were stunted in West Lombok. It had one of the highest rates of stunting in Indonesia. By 2018 this had tumbled to around one in three children (34%). West Lombok became a byword for best practice in the coordinated fight against stunting, attracting government delegations from Timor-Leste, Cambodia, India, Sri Lanka, Nepal, and Bhutan.

The secret of West Lombok's success? There was no single solution. In fact, West Lombok is a powerful example of the importance of coordination in making significant gains in reducing stunting. It has become

a poster child for coordination and collaboration, for multisectoral convergence to reduce stunting.

In 2007, alarmed at the exceedingly high number of stunted children in the district, the District Health Office (DHO) of West Lombok realized that steps have to be taken immediately to tackle stunting, in a coherent and coordinated fashion.

Over the next decade West Lombok would strengthen its multisectoral approach, seeking greater synergies, integration, and complementarity between and across the sectors and programs. This went hand in hand with a range of new initiatives to boost the use of technology, education, counseling, and community engagement to drive down rates of stunting.

With a 13.3 percentage point drop in stunting prevalence over a period of five years, from 2013 to 2018 (NIHRD, 2013, 2018)¹⁶, West Lombok's achievement lies largely in the effective simultaneous implementation of nutrition-specific and nutrition-sensitive interventions – from the district level, right down to grassroots level (Box 9).

¹⁶ According to Riskesdas, in 2013, West Lombok reported a stunting rate of 46.9% among children under the age of five. In 2018, this figure dropped to 33.6%.



Box 9: Distinctions between nutrition-specific and nutrition-sensitive interventions

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 health care for mothers and infants, food security and safety, agriculture, social safety nets, schooling, water, sanitation and hygiene (Lancet, 2013).

This effective implementation is made possible by the strong cross-sectoral coordination within the district government. A two percentage points annual reduction in stunting is close to what the most successful programs have achieved. West Lombok's success has proved a role model for StraNas Stunting and an inspiration for others (See Box 1 for more information on the Gol's Stranas Stunting).

In 2019, delegations from Timor-Leste, Cambodia, India, Sri Lanka, Nepal, and Bhutan visited to learn how West Lombok achieved convergence in government efforts to target and reduce high rates of stunting.

Closer to home, officials from Indonesia's Ministry of Health, the Secretary of the Vice President's Office, the Ministry of Villages, and the Ministry of Education have also taken part in visits to villages in West Lombok to witness this success at first-hand.



"This is a great opportunity for our team to learn in depth about policy and coordination, right down to the grassroots. There is a lot to learn and plenty of experience we can take away for the future implementation of our program in Cambodia," said H.E. Ny Kimsan, Deputy Director of the National Committee for Sub-National Democratic Development Secretariat (NCDDS) and the Project Director of Cambodian Nutrition Project (CNP).

Success in the fight against stunting takes time.

Initial interventions focused on health only showed limited promise, with rates remaining stubbornly high in West Lombok.

International research shows that even the best nutrition specific interventions have limited impact: there is only a 20% reduction in stunting prevalence (Lancet, 2013).

More significant gains rely on multisectoral interventions: strengthening links in the chain ranging from water and sanitation to immunization, breastfeeding and increasing access to affordable and nutritious food for mothers and infants.

West Lombok sought to ensure that all interventions were interlinked to ensure success.



CLOUD SOLUTIONS TO TACKLE STUNTING

West Lombok's initial efforts to tackle chronic malnutrition focused on routine and innovative health programs. Data would prove critical in combating the scourge of stunting.

The DHO prioritised data, conducting a district-wide census of children under the age of five during Growth Monitoring and Promotion and Immunization Month.¹⁷

This allowed the DHO to obtain a more complete picture of nutrition for children in the district, as well as map the location of the children by name and by address. This created an opportunity for more targeted and effective intervention.

Armed with this invaluable data, West Lombok was able to create a cloud-based database for use in the fight against stunting.

This cloud-based electronic health information system records, reports and monitors the health and nutritional status of infants and children through the *e-Puskesmas*, *e-Pustu/Poskesdes* and *e-Posyandu* applications developed by the local DHO.



"Electronic recording and reporting started in 2008. But with the launching of the application and cloud-based programs in 2017, we are now able to provide real-time monitoring and timely intervention delivery based on actual data," said Drs. H. Rachman Sahnun Putra, former head of the West Lombok DHO.

To date, up to 900 *Posyandus* are using the *e-Posyandu* application. This up-to-date information on the nutritional and health status of the children in West Lombok is proving crucial in efforts to reduce stunting.



¹⁷ Growth Monitoring and Promotion (GMP) and Immunization Months are typically conducted once or twice a year. It is different from the monthly GMP and immunization activities as during the GMP and Immunization Months, there is increased attendance at *Posyandu* and *Puskesmas* due to intensive promotion and sweeping efforts to reach every household. In other districts, GMP Month can coincide with Vitamin A Month.

STRATEGIC CROSS-SECTORAL COORDINATION

Data was not enough to make a difference on its own. Cross-sectoral coordination held the key.

West Lombok owes its successful cross-sectoral coordination, in no small part, to the leadership of its Head of district, *Bupati* H. Fauzan Khalid, S.Ag, M.Si.

His strong grasp of nutrition and understanding of local conditions, even its most remote villages, proved invaluable in steering for greater collaboration, coordination and convergence with the help of his team of *Bappeda* and *Dinas* heads.



"Stunting is not just the responsibility of the Health Dinas. In fact, [to reduce stunting] most people concentrate on the first thousand days of lives and nutrition interventions, but efforts need to start earlier," he said.



"Everyone - from Health Dinas, non-health Dinas, private sector and non-governmental organizations (NGOs) - needs to work together to make a difference," he said.

It is with this strategic thinking that West Lombok is able to capitalize on a set of nutrition-specific and nutrition-sensitive interventions, including those that address nutrition and stunting early. The key is to ensure everyone in every community is involved.

From early child marriage and adolescent health to nutrition for mothers and sanitation, every link in the chain is crucial in strengthening the region's drive to reduce stunting.

ADOLESCENT HEALTH IN SCHOOLS

One such intervention is the *Aksi Bergizi* Program for adolescents in junior high school and high school. With technical support from UNICEF and implemented through the collaboration of the health and education *Dinas*, *Aksi Bergizi* provides breakfast and iron supplements to students once a week. In addition, teachers provide health and nutrition literacy classes. As of August 2019, as many as 48 schools in West Lombok were running the program.

MAKING A DIFFERENCE WITH MARRIAGE COUNSELING

Another early intervention to prevent stunting includes the Marriage Candidate counseling Program. A collaboration between the Religious Affairs Office and the Health *Dinas*, the program provides information and counseling on health, household nurturing and prevention of violence against women and children. In addition, participants are also provided health screening, including for HIV/AIDS and sexually transmitted diseases.

With historically high early marriage rates, West Lombok has also implemented interventions to address early marriage among adolescents, one of the risk factors for stunting.¹⁸

One such intervention is the *Gerakan Anti Merarik Kodek* or GAMAK movement, which aims to prevent early marriage among youths in West Lombok. With the support of community, religious, village and cultural leaders, the movement is changing the community's perceptions and behaviour on early marriage.

¹⁸ In 2016, a baseline study found early marriage prevalence to be 25% in West Lombok (Hidayana et al., 2016).

This drive has been underpinned by the publication of a local regulation to prevent early marriage, *Peraturan Bupati Lombok Barat No. 30 Tahun 2018 tentang Pencegahan Perkawinan Usia Anak*.

Principally implemented by the Office of Population Control, Family Planning, Women's Empowerment and Child Protection, but supported by non-governmental organizations including Yes I Do, GAMAK is helping to create a community, cultural and religious consensus in villages about the importance of preventing early marriage.

As a cultural practice, if the consensus is violated, cultural sanctions can be imposed. This informal community consensus has proven to be more effective in preventing early marriages compared to village regulations, according to *Bupati H. Fauzan*.

In addition to interventions that address stunting early, the district of West Lombok has also implemented a number of interventions aimed at addressing risk factors in the first thousand days of life.

NUTRITION AND HEALTH IN VILLAGES

These first thousand days of life interventions include routine health services for pregnant women, such as antenatal care, iron-folic acid supplementation, complementary feeding for chronic energy deficiency, congenital hypothyroidism screening and social health insurance for delivery at health facilities (*Jampersa*).

Interventions for infants and children under the age of two include growth monitoring and promotion at the *Posyandu*, complementary feeding for underweight children and counseling for infant and young child feeding (IYCF). Through the initiative of the DHO, nutritionists are also now placed in villages (on a ratio of 1 nutritionist to 2 villages) to strengthen nutrition services delivery, including counseling.

In addition, Therapeutic Feeding Centers have been established in four *Puskesmas* to address severe acute malnutrition (SAM) or wasting in the community (see “East Nusa Tenggara – No time to waste in the fight against wasting” for more information on initiatives to address SAM or wasting in Indonesia).

In November 2016, the district of West Lombok launched an innovative movement, termed *Gerakan Masyarakat Sadar Gizi*, (*Gemadazi*) to address malnutrition in the district. Although programs to address malnutrition have long been implemented in West Lombok, *Gemadazi* sets itself apart through its ability to address malnutrition in an integrated, cross-sectoral manner.

The movement is integrated with all nutrition prevention and treatment programs implemented in the district and involves the local community as well as stakeholders at every level (district, sub-district, and village) to maximize available resources and opportunities in each subdistrict.

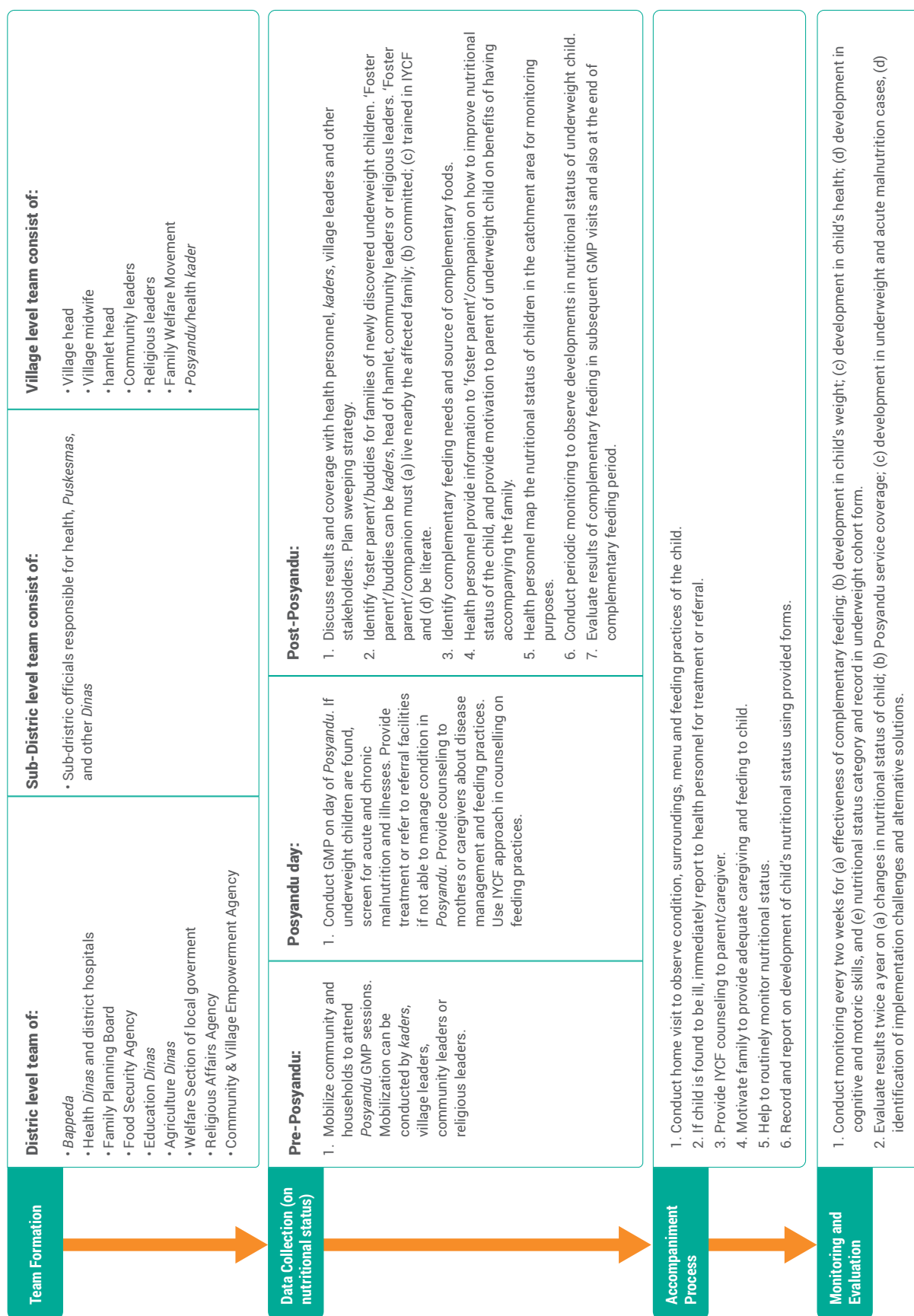
BUDDIES FOR BETTER NUTRITION AND HEALTH

Another innovative aspect of the *Gemadazi* movement is the appointment of ‘foster parents’ or ‘buddies’ for families with underweight child. These ‘foster parents’ or ‘buddies’ play an important role in motivating the parents and caregivers to get appropriate treatment and help for their underweight children, through counseling, monitoring and home visits. Regulations have been passed for the villages outlining the duties of the ‘foster parents’ or ‘buddies’ to ensure success.

Figure 4 below illustrates the key steps to starting and implementing the *Gemadazi* movement.

West Lombok has also made significant progress in its nutrition sensitive interventions, contributing to the drop in stunting prevalence.

Figure 4: Key steps in starting and implementing Gemadazi



Source: Buku Pedoman Gemadazi, West Lombok District Health Office

CLEAN WATER AND BETTER SANITATION

With close cross-sectoral coordination between the Office of Public Works (*Dinas PUPR*), Community and Village Empowerment Agency (PMD), DHO and *Bappeda*, major gains have been achieved in the district's access to clean water and better sanitation.

In 2014, about 83% of households in the district had access to clean water and only 62.5% had access to healthy latrines. About 12% of villages were Open Defecation Free (ODF).

By 2020, 97.5% of households were able to access both clean water and healthy latrines. In addition, 87.7% of villages are now ODF, a very impressive achievement (*Dinas Kesehatan Kabupaten Lombok Barat, 2020*).

Innovative local movements such as *Gerakan BERPIJAK (Berikuk Piak Jamban Keluarga) Sehat* also encourage the community to contribute towards building healthy latrines in the village to increase ODF coverage.

As one of the pilot sites for the Human Development Workers (HDW) concept, West Lombok has also seen an increase in the involvement of the Community and Village Empowerment Agency (PMD), village leaders and community in addressing stunting.¹⁹

COMMUNITY INVOLVEMENT GROWS

A mobile app - the e-HDW - which helps the HDW to conduct their social mapping more efficiently was also piloted in the district with great success.

While training is underway for HDWs in the district, challenges still remain for the trained HDWs, including heavy workload, and smoother data sharing coordination with the Health *Dinas* and Social *Dinas*. Nevertheless, as the district continues to smooth out the implementation of the HDW concept, tools such as the Growth Length Mat help to improve the awareness of communities in West Lombok regarding stunting

and the importance of consistent growth monitoring (see "The Length Mat: *"Tikar Pertumbuhan"* an easy education tool to raise awareness about stunting).

West Lombok is also able to draw upon its network of religious leaders to increase awareness regarding health issues, including stunting, among communities in the district. With a background in religious studies, *Bupati* H. Fauzan was able to lead this innovative method of reaching out to the community. To date, close to 50 local religious leaders have been trained about health programs. These religious leaders, termed *Dai' Kesehatan*, are effective at communicating health messages and reminders to their congregations.

LEADERSHIP AND COORDINATION PIVOTAL

Ultimately, the impressive drop in stunting prevalence in West Lombok is largely due to the committed and strong leadership of the district head, and close cross-sectoral collaboration of the local government agencies.

The strong technical support from the DHO also helped the local government agencies to understand the importance of addressing stunting. From the first national *Rembuk* Stunting in November 2017, to the first district *Rembuk* Stunting held in May 2019, no efforts have been spared to ensure programs and regulations are put in place. This is reflected in the local district work plan (RPJMD) for the year 2019, where stunting is included as one of the 19 performance indicators for the district.

In 2019, as much as IDR 256.3 million (approximately USD 18,100) was allocated by the *Bappeda* for the cross-sectoral, district wide fight against stunting, a significant increase from the budget of IDR 20 million (approximately USD 1,400) in 2018. In addition, important local regulations have been updated, or put in place in the recent years to ensure resources and commitment to address stunting are secured and sustained. The key local regulations are listed in Box 10.

¹⁹ Started by the Ministry of Village's *Generasi* Program together with Stranas Stunting, HDW support convergence of priority interventions at the village level. For more information on the HDW, please refer to Aiming High: Indonesia's Ambition to Reduce Stunting, Box 5: Human Development Workers.

Box 10: Key local regulations addressing stunting in West Lombok

1. *Peraturan Bupati Lombok Barat No. 25 Tahun 2018 Tentang 3 Program Utama: Pencegahan Stunting, Penanggulangan TB Paru dan Peningkatan Cakupan dan Mutu Imunisasi.* (This regulation includes regulations on Behavior Change Communication (BCC), and training of BCC to *puskesmas* health workers, and the implementation of BCC in the district.)
2. *Peraturan Bupati Lombok Barat No. 16 Tahun 2018 Tentang Alokasi Dana Desa dan DD Untuk Mendukung Upaya Kesehatan dan Keluarga Berencana.* (This regulation is an update of a 2014 regulation to include stunting.)



However, not all is smooth sailing for West Lombok, and the district leaders admit to making mistakes and facing challenges in the fight against stunting.



"Our biggest mistake was in forgetting the Posyandu," said Bupati H. Fauzan. "Because of this, we lost our link to the community," he added.

The district is now in the process of revitalizing the *Posyandu*, with yearly jamborees to bolster the spirits of the community and the *kaders*. Local regulations have also been drawn up to allow for allocation of village funds for *Posyandu* activities (See Box 10). Plans are also in place to implement a *Bunda Posyandu* Program, akin to the PKK women's group except that the *Bunda Posyandu* duties will be solely focused on the *Posyandu*.

Despite good cross-sectoral coordination, challenges in coordination between sectors, actors and programs still exist.

The district hopes to address this through better planning of strategies and programs and by building better synergies across sectors early in the planning stage, for example through the *Musrembang* (community consultations on development) held at all levels such as the district, subdistrict and village. The commitment of village leaders is also critical to ensure the success of the National Strategy to Accelerate Stunting Prevention (StraNas Stunting).

Sometimes not all village leaders are committed to using village funds to prevent stunting. The district is taking steps to address this through local regulations and by increasing the awareness of village leaders about the importance of tackling stunting.

West Lombok has shown the world that the fight against stunting is never about a single solution.

The whole is always greater than sum of its parts.



EAST NUSA TENGGARA: NO TIME TO WASTE IN THE FIGHT AGAINST WASTING



When an 18-month old boy fell seriously ill with severe acute malnutrition (SAM), also known as severe wasting, in the village of Poto in Indonesia's southernmost province of East Nusa Tenggara, there was no time to waste to save his life.

Midwife Ibu Christine was quick to refer Marthen to the nearest hospital for treatment of medical complications due to severe wasting.

After he was discharged from the hospital, he received outpatient treatment at his local community health center (*Puskesmas*). With the right treatment, and appropriate counseling for his parents, he fully recovered from severe wasting and returned to his normal nutritional status. Access to community-based treatment not only helped to speed up the boy's recovery but allowed his parents to continue working and support him as his condition improved.

Marthen's story²⁰ highlights the crucial role community has to play in detecting, treating and reducing rates of wasting, and stunting, in Indonesia.

Severe wasting impedes children's ability to grow to their full potential, increasing the risk of stunted growth by more than three times. In addition, wasting, and stunting share common risks, such as infections and inadequate diet (see Box 11 for relationship between wasting and stunting). Both also increase a child's risk of death. Evidence suggests addressing both must go hand in hand with an integrated approach to health, nutrition, and care with significant community engagement and empowerment key to success.

The GoI's *StraNas* Stunting (see Box 1) provides a platform for such measures and it is critical that programs addressing childhood wasting taps into the infrastructure provided.

20 Marthen's story was first featured in UNICEF Indonesia's blog on Oct 31, 2016 (UNICEF, 2016).

Box 11: Relationship between wasting and stunting

Although the exact mechanisms are unclear, wasting and stunting can, and often do, occur in the same child. The extent to which the conditions occur together, however, is largely unreported. Gains in weight and height often occur at different times of year and seem to be related over time in a consistent way. Evidence points towards height faltering peaking two to three months after wasting levels have peaked.

The measurement of association between wasting and stunting at population level is challenging. This is because most measurements of stunting and wasting use cross-sectional surveys, whilst the nature and seasonal vulnerability of wasting means that wasting has a relatively shorter duration. Depending on data collection periods and methods, an underestimation of the yearly burden of wasting compared to stunting can happen.

Wasting and stunting share many common risk factors, such as infections and inadequate diet

(both maternal and child). Wasting and stunting also contribute to increased mortality – severe wasting as high as 11.6 times compared to a non-wasted child, severe stunting as high as 5.5 times compared to a non-stunted child. However, when stunting and wasting co-exist, the child is 12.3 times more likely to die compared to a non-stunted and non-wasted child.

Early detection and treatment of child wasting is undoubtedly one crucial action to prevent stunting and its negative impacts. Most nutrition policies and programs have separate approaches for wasting and stunting, and this division has been increasing in recent years. Evidence however, points towards a need to address both acute and chronic malnutrition in an integrated manner due to their overlapping pathways and links between ponderal and linear growth. There is a need for a bridging of policies and programs, in addition to setting up a joint framework for wasting and stunting policy, programming and research.

Source: Adapted from (Khara & Dolan, 2014)

Marthen's case is not uncommon. In many provinces, communities struggle to access nutritious food and healthcare. Many of these communities also practice their own cultural beliefs related to food, illnesses, and treatments. Marthen's family had initially turned to spiritual healers to cure him when he first fell ill with a cough and fever. Numerous delays in seeking health services over the next six months after he first fell ill caused a rapid deterioration in his health.

Then the midwife stepped in during a routine vaccination visit.

There is no better example of the power of a life-saving community-based approach to treating children with severe wasting.

In 2007, UNICEF, the World Health Organization (WHO), the World Food Programme (WFP) and the United

Nations Standing Committee on Nutrition (SCN) introduced the Community-Based Management of Acute Malnutrition (CMAM) approach to treating children with severe wasting.

Using this approach, only severe wasted children with medical complications are treated in inpatient facilities, whereas uncomplicated severe wasted cases with good appetite may receive treatment in outpatient facilities with the support of a community-based program.

Prior to the introduction of the CMAM approach, management of severe wasted cases had only relied on treatment in inpatient facilities, and many of the treatment centres faced the challenges in finding and retaining severe wasted children until they were fully cured.

Relapses also occurred frequently due to early discharge of patients, drop-outs or poor caring practices.

Links with other health and nutrition services, such as the Integrated Management of Childhood Illnesses (IMCI) and Infant and Young Child Feeding (IYCF) counseling, were almost non-existent.

The treatment of wasting has been a standard component of health services in Indonesia for many years. Inpatient care for children with severe wasting has been provided in district and provincial hospitals, some health centres and therapeutic feeding centres. However, the coverage and quality of care for children with severe wasting in Indonesia is low. The Ministry of Health (MoH) reports that it treats around 20,000 children with severe wasting a year, which is estimated to be less than one percent of the total burden of severe wasting.

FIVE STEPS TO TACKLE SEVERE WASTING

Change was needed and the community had a crucial role to play in that.

The CMAM approach identified five steps, rooted in local communities, to dealing more effectively with severe wasting (Figure 5).

The first step was for community health volunteers (*kaders*) to screen for severe wasted children at *Posyandu* and at community events. The second step was to confirm cases. Once cases were confirmed there was a two-pronged approach to treatment, including inpatient and outpatient treatments.

The third step was to treat severe wasted children without medical complications and with a good appetite with ready to use-therapeutic food (RUTF) in outpatient services.

This ability to treat the children locally was crucial in remote and disadvantaged communities with poor access to health services far away.

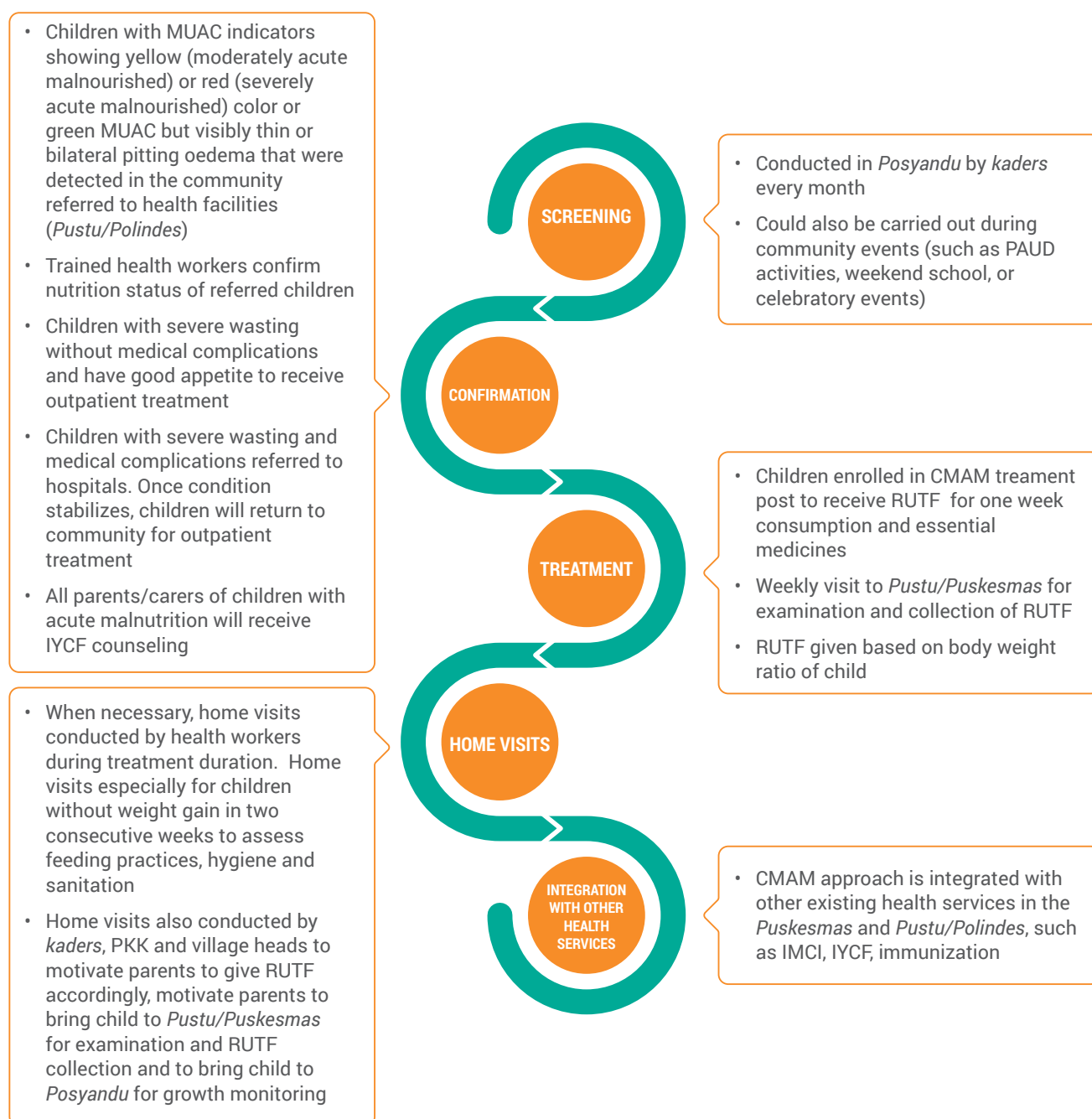
Children with medical complications would be hospitalized until they stabilized and then continued to receive outpatient treatment.

Fourthly, home visits supported a child's recovery and nutrition, such as through counseling to ensure that parents provide good care and practice appropriate infant and young child feeding (IYCF) and also continue to access ready-to-use therapeutic food (RUTF) through weekly visit to *Puskesmas*.

Last but not least, CMAM was integrated into wider health and nutrition services in local communities in East Nusa Tenggara.



Figure 5: Flow of CMAM approach in the Kupang district



Source: Kupang District Health Office

The CMAM approach is designed to overcome challenges, such as low coverage and high relapses, by focusing strongly on community mobilization²¹ and active case finding²² to ensure all children with severe wasting in the community are identified at an early stage and referred for treatment.

This approach also helps to reduce burdens on the health system. It also helps the families by reducing the time and cost of treatment as most children can stay at home during treatment.

²¹ Community mobilization covers a range of activities that help frontline health workers and *kaders* build a relationship with the community and foster people in the community to use, in this case, CMAM services.

²² Active case finding is a unique approach where frontline health workers and *kaders* at the households and the health facility actively seek out sick and malnourished children.



POST-TSUNAMI RESPONSE

In Indonesia, the drive to introduce CMAM started in 2005 during the Aceh Tsunami Response, where RUTF was distributed as therapeutic foods for wasted children in emergency situation.

In 2007–2015, CMAM was also rolled out in districts such as Lombok in West Nusa Tenggara Province, and Sikka and Belu in East Nusa Tenggara Province. However, these earlier attempts ended as pilots, without successful scale up.

In 2015, together with the Ministry of Health and Action Against Hunger, UNICEF piloted CMAM in six sub-districts of Kupang District in the province of East Nusa Tenggara, where severe wasting was critically high.²³

The project aimed to reduce mortality and improve the recovery of children with severe wasting. Specifically, it sought to ensure children received appropriate treatment through CMAM. The ultimate ambition was for these projects to allow the model to be scaled up in other parts of Indonesia.

During three years of the pilot, the local government of Kupang District and East Nusa Tenggara province

set out to engage the community, improve the quality of health services and to record vital lessons learned to share with others.

The key activities of the CMAM Project included training frontline health workers on severe wasting treatment, maternal nutrition, integrated management of childhood illness (IMCI), infant and young child feeding (IYCF) and handwashing. It also provided capacity building for the community, including *kaders*, on community mobilization and active case finding including how to measure children mid-upper arm circumference (MUAC)²⁴ using simple coloured MUAC tapes for early detection of severe wasting (see Figure 6 for detailed activities).

The supply chain management for equipment and medication, such as mid-upper arm circumference (MUAC) tapes, anthropometric tools, ready-to-use therapeutic food (RUTF) and other routine medication was strengthened. In addition, the government of Kupang District also carried out monitoring and evaluation of the project. This would be used to share lessons learned for other parts of the country to follow suit.

²³ According to Riskesdas survey data, Kupang District acute malnutrition prevalence for children under five was 33.4% in 2013 (NIHRD, 2013).

²⁴ Mid-Upper Arm Circumference (MUAC) is a simple way to screen for malnutrition or thinness among children aged between six months to five years old in the community - an alternative to weight-for-height (Kementerian Kesehatan RI, 2019).

Figure 6: Key activities of the CMAM project

Active community engagement	Health service provision	Documentation
<ul style="list-style-type: none"> ■ Train village stakeholders on community mobilization and active case finding (screening for wasting) ■ Train <i>kaders</i> on Maternal Nutrition and IYCF counseling and the promotion of handwashing ■ Conduct community mobilization to increase demand by community members for CMAM services ■ Conduct regular screening of under five children for wasting, involving <i>kaders</i>/PKK, religious leaders, and other community leaders ■ Provide information and counseling to women and caregivers on maternal nutrition and IYCF 	<ul style="list-style-type: none"> ■ Train nutritionists and health workers on the management of severe wasting, including community mobilization, screening, diagnosis, treatment, supply management, supportive supervision, monitoring and reporting ■ Train nutritionists, health workers, and sanitarians on Maternal Nutrition and IYCF Counseling, including handwashing with soap and safe drinking water ■ Procure supplies and equipment for CMAM services ■ Strengthen WASH facilities and practices in health facilities 	<ul style="list-style-type: none"> ■ Monitor and evaluate the project to determine the impact of the new approach on treatment of severe wasting ■ Document and disseminate the lessons learned to provide the evidence for scaling up to other districts/provinces

Source: UNICEF



CHALLENGES CONFRONTED AND OVERCOME

In its first year, the pilot faced the challenges of low coverage of the CMAM project, high drop-out rates, and slow recovery periods for the severe wasted children in the six sub-districts.

Therefore, in 2016, UNICEF conducted a semiquantitative evaluation in selected sub-districts to understand the reasons for the low coverage and disappointing performance of the CMAM Project.

They found a low level of community awareness of acute malnutrition.

There were also issues with the need to travel from home to seek treatment.

Health workers and *kaders*' technical knowledge of severe wasting and CMAM also left something to be desired.

Screening of children at the *Posyandu* failed to significantly identify a large proportion of severe wasted children as only 14% of eligible children under the age of five were registered in the *Posyandu*. In addition, follow-up of identified severe wasted children was low (approximately 25%) and only 44% of children under treatment recovered. Close to 50% of children dropped out of treatment (Bait et al., 2019).

The results from this evaluation was used to improve the program.

All this led to low parental attendance at *Posyandu* and low interest in the CMAM program in the community (Bait et al., 2019).

In an effort to overcome the challenges, UNICEF, Action Contre la Faim (ACF or Action Against Hunger) and the local government of Kupang District intensified efforts to improve the coverage and quality of the program by strengthening community engagement, increasing active case findings and improving the capacity of health workers and *kaders* between January 2017 and February 2018.

Community engagement was improved by speaking with parents, government authorities, religious leaders and community leaders about severe wasting, the importance of screening and growth monitoring.

Kaders visited household and encourage *Posyandu* attendance.

Community was intensively involved in tackling the problem, including through screening, gained support from local religious leaders and *Pemberdayaan dan Kesejahteraan Keluarga*, PKK (Family Welfare Movement) members.

To improve finding children in need of support, *kaders* visited households with children who had missed *Posyandu* sessions. Screening for severe wasting was provided to these children, followed up by support for children suspected of possible severe wasting and referral services for confirmation of severe wasting diagnosis. In addition, in their efforts to improve treatment adherence, the *kaders* conducted multiple home visits to the same households to encourage parents and carers to bring the children to treatment centres; on occasion, these efforts also included helping with transport to treatment centres to deter drop-outs. At the same time, the MoH and Kupang District Health Office provided support by increasing efforts to integrate CMAM into existing health services (Bait et al., 2019).

These efforts paid off. Within a year, the district had boosted community engagement in reducing the prevalence of severe wasting, increasing its rate of detection, screening, and treatment.

The severe wasting screening rate increased from 17% to 66% between October 2015 and March 2018.

Posyandu attendance improved from around 50% to 79%.

The percentage of children with suspected severe wasting attending treatment centres proportion rose from zero to (in October 2015) to 70% (in March 2018).



In 2017, the program met three out of four Sphere Project performance indicators²⁵: 79% (256/326) of children recovered and only 10% (34/326) dropped out. Less than one percent (2/326) died (Bait et al., 2019).

Success breeds success.

The local district and provincial government committed their own funds and resources to scale up CMAM to 18 non-pilot sub-districts in Kupang District and 21 districts in the East Nusa Tenggara province, respectively.

CMAM has gone from strength to strength. The Ministry of Health is ramping up the role played by CMAM with its Integrated Management of Acute

Malnutrition (IMAM) program.

In 2019, the national protocol for treatment of severe wasting was updated to include CMAM for the first time, in addition to facility-based treatment under the IMAM program.

And in 2020, all 22 districts in East Nusa Tenggara successfully introduced and implemented the IMAM approach, mobilizing local government budget and resources. Plans to roll out IMAM across 260 districts in Indonesia are underway.

With the community at its heart, the program to conquer the scourge of severe wasting now points to a brighter future for boys and girls like Marthen across Indonesia.

²⁵ Sphere Project provides standards and key indicators for planning, implementation, monitoring and evaluation of humanitarian response to both slow- and rapid onset situations following natural disaster or conflicts. The Sphere minimum standard is the percentage for which the outcomes of the program is deemed successful.



EAST NUSA TENGGARA AND EAST JAVA: ENHANCED PARTNERSHIPS AND INTEGRATED PROGRAMMING IMPROVES MATERNAL AND CHILD HEALTH



Getting people around a table can make all the difference.

This was no easy task when it came to gathering stakeholders in the provinces of East Nusa Tenggara (ENT) and East Java (EJ) to join forces to reduce anemia in pregnant women and improve child health.

For years, the various departments in the province and district health offices—nutrition, health promotion, maternal and child health, and pharmacy—had worked in silos, with minimal cross-departmental coordination.

That changed when a leading international NGO, Nutrition International, helped to gather all stakeholders around a table for integrated planning, implementation, and monitoring for maternal nutrition programs aimed at delivering proven nutrition interventions to high-need communities, through technical assistance.

Nutrition International, in partnership with the governments of Indonesia, Australia and Canada extended support to the Ministry of Health (MoH), and provincial and district governments to address micronutrient deficiencies in pregnant women and children, as well as diarrhea treatment, in an integrated manner.

This led to the inception of the Micronutrient Supplementation for Reducing Mortality and Morbidity (MITRA) program in Indonesia in 2015. MITRA program is an integrated micronutrient supplementation (vitamin A, iron-folic acid [IFA], zinc, and low-osmolarity oral rehydration salts [LO-ORS]) program implemented in 20 districts of both East Java (EJ) and East Nusa Tenggara (ENT) provinces (Box 12).

Micronutrient supplementation is a nutrition-specific intervention and can contribute to stunting reduction.

Both provinces reported very high childhood stunting rates: in 2013, ENT and EJ provinces reported 51.7% and 35.8% prevalence of stunting in children under five respectively (NIHRD, 2013). In 2018, these prevalence reduced slightly to 42.6% and 32.7% respectively (NIHRD, 2018). Evidence shows that stunting can be prevented with concerted action targeting its drivers in the first thousand days of a child's life (from conception to a child's second birthday) (Black et al., 2013). Thus, it was crucial to introduce local initiatives, such as MITRA, in these regions to contribute not only to reduced mortality and morbidity, but also to alleviate stunting.

What set the MITRA program apart was its focus on integration, health systems strengthening, and behavior change to improve maternal and child nutrition (Figure 7).



"Most provincial and district health offices, due to their mandate, typically work independently.

For example, Communicable Diseases Department handles childhood diarrhea prevention, while the Community Health Department manages family health and health promotion. However, at the village-level both of these programs are implemented by the village midwives. Nutrition is intricately linked with all of these programs," said Mardewi, former Program Coordinator of the Maternal and Child Health Program at Nutrition International, Indonesia.

The lack of integration and coordination caused uncertainty, especially considering that target beneficiaries across departments were the same: pregnant women and children under the age of five.

Though the interventions were different, they required similar tasks. For example, all interventions to address anemia among pregnant women and child morbidity involved micronutrient supply-chain management processes. All interventions required advocacy to increase awareness among health workers and counseling by health workers to improve compliance among the targeted population.

Box 12: MITRA program aims and beneficiaries

The MITRA program was introduced in these provinces with an objective to improve access to health services for both pregnant women and caregivers of children under five, leading to better health. The program aimed to improve the management and prevention of diarrhea among children through use of zinc and low-osmolarity oral rehydration salts (LO-ORS), reduce vitamin A deficiency among children through vitamin A supplementation (VAS), and prevent and reduce anemia among pregnant women through iron & folic acid (IFA) supplementation.

Since its inception in 2015, in East Java and East Nusa Tenggara, the MITRA program has reached:



211,000 pregnant women with IFA supplements

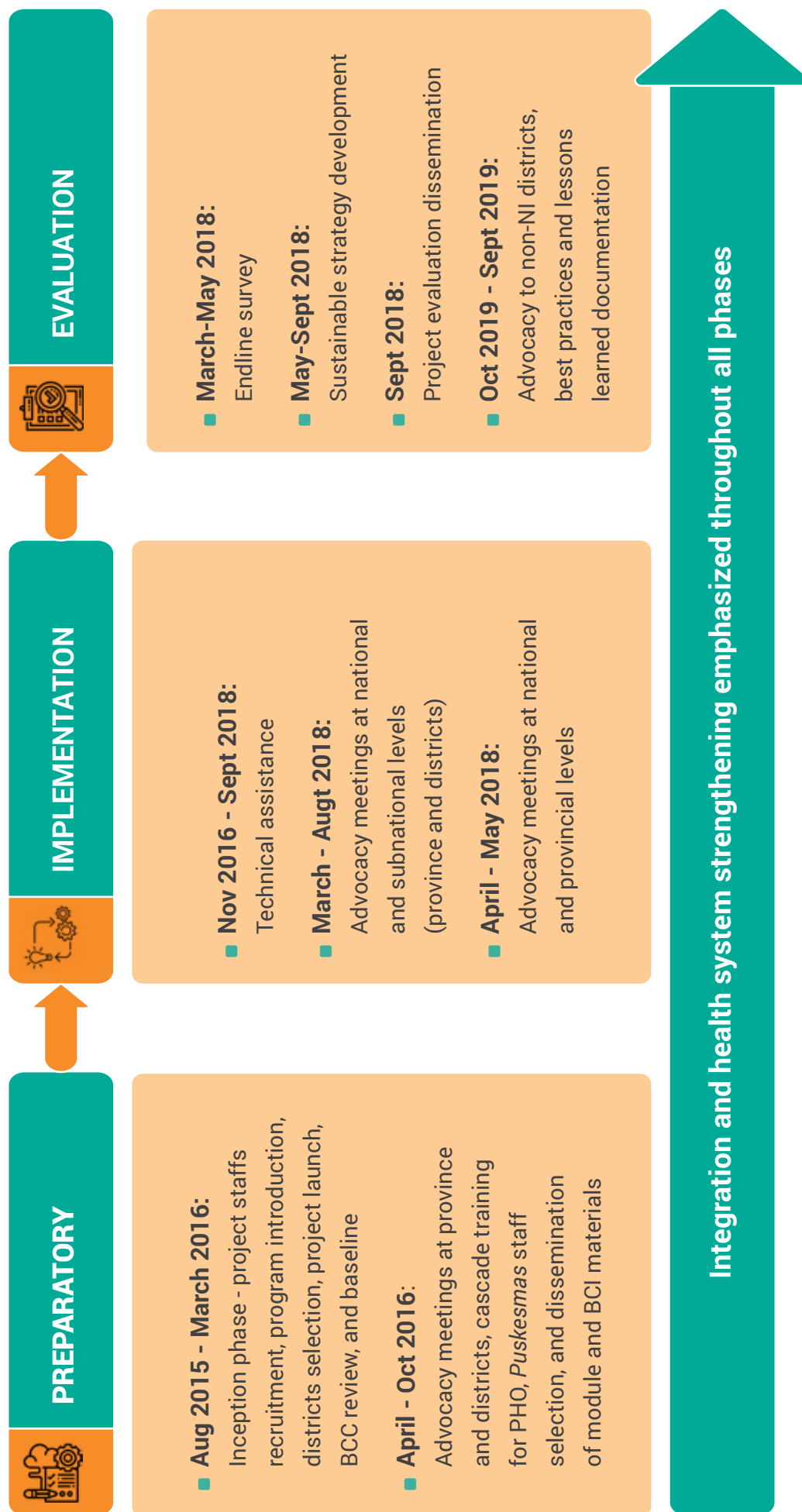


720,000 children (6-59 months) with vitamin A supplementation



64,000 children suffering from diarrhea with zinc and LO-ORS treatment

Figure 7: MITRA Project phases





SHARING RESPONSIBILITY AND INTEGRATED CARE

During the preparatory phase, cross-department advocacy meetings and training sessions were held with provincial and district health offices. The aim of these meetings was to consolidate efforts and raise awareness of collective and shared responsibilities.

Moreover, the goal was to ensure that the target population received integrated care, and to promote robust data recording and reporting.

These integrated sessions brought together different departments (e.g. Pharmacy, Nutrition, and Family Health) and proved to be essential in breaking down barriers and increasing service efficiency. For example, integrated planning with a focus on health system strengthening helped improve micronutrient supplement logistical forecasting to ensure continued service delivery. Integrated training sessions provided health workers with knowledge and awareness to effectively manage, prescribe and counsel on IFA, LO-ORS, zinc and vitamin A.

Nutrition International also supported the MoH to conduct integrated annual meetings and carry out a comprehensive cascade training to provincial and district health offices. This proved to be an effective approach, low in intensity and cost, yet high in impact.

Cascade trainings began with training of trainers (ToT) for the Provincial Health Office (PHO), followed by District Health Office (DHO) staff, and subsequently, selected *Puskesmas*. The trainings emphasized an integrated multi-disciplinary and multi-level approach. For PHO and DHO training,

participants from Nutrition, Pharmacy, Maternal and Child Health, Communicable Disease, and Health Promotion departments were involved. While, for *Puskesmas* training, Nutrition Officers, Coordinating Midwives, Diarrhea Officers, Pharmacy Officers, Doctors and/or Heads of *Puskesmas* were included. A comprehensive training module was developed as learning tools for all participants about the benefits of micronutrient supplementation. In addition, each *Puskesmas* was provided 4-6 sets of Behavior Change Intervention (BCI) materials which could be implemented in the community.



"We wanted to strengthen the micronutrient supplementation program and it was very helpful to get Nutrition International's support from the ground up, to help us build more commitment, train our staff and also bring the different aspects of the program together," said Ngurah Suarnawa, Head of the Family Health Division, Kupang City Health Office, East Nusa Tenggara province.

"It enabled us to make the programs more efficient, especially in terms of supply chain management to ensure regular availability of IFA tablets and vitamin A. This support enabled us to integrate learning from the MITRA program very well within the Puskesmas," he said.

By October 2016, training for integrated micronutrient management was completed, DHOs and *Puskesmas* began implementing the integrated approach in the field. However, the roll-out came with its share of setbacks.

OVERCOMING CHALLENGES

The program experienced a period of shortages for iron folic acid (IFA) supplements in EJ and ENT in the year 2016, and in 2017 for ENT. Those shortages occurred due to changes in the formulation and packaging of IFA supplements, resulting in procurement delays and stock shortages. However, Nutrition International encouraged several districts to overcome this short-term challenge by procuring their own IFA supplies using their local budget.

The low prioritization of zinc in diarrhea management posed another challenge, as the national zinc program was relatively new in 2015. Many doctors were not aware of the program and often resorted to prescribing antibiotics for diarrhea treatment instead of the WHO recommended ORS-Zinc therapy. In addition, there was limited budget allocation by the DHO and PHO for essential program activities like training and technical meetings as this was considered a lower priority. To overcome this challenge, Nutrition International encouraged the MoH to provide technical assistance to the districts which resulted in budget allocation and personnel

for awareness raising about zinc as an adjunct treatment for diarrhea through district meetings and field visits to *Puskesmas*.

Adherence (daily consumption) to IFA supplements during pregnancy was yet another hurdle to overcome. The IFA program had traditionally prioritized expanding and ensuring coverage, while a focus on increasing IFA consumption was getting missed. To this end, Nutrition International introduced the IFA supplement compliance card to record receipt and consumption of IFA tablets by pregnant women (Figure 8). Not only did the card help pregnant women in keeping a record of the tablets, it also acted as a reminder for them and their family members to ensure there were no missed doses. In addition, the card became a useful monitoring tool for the health workers at the facility and community levels. IFA compliance cards, initiated during the implementation of the MITRA program, have emerged as a significant tool in improving the monitoring of the IFA supplementation program in EJ and ENT.

Figure 8: IFA compliance card from the MITRA program

Kotak Kontrol Minum TTD pada Ibu Hamil	Kotak Kontrol Konsumsi PMT pada Ibu Hamil	
Nama:..... Usia:.....tahun	Nama:..... Usia:.....tahun	
Bulan ke-1 Bulan ke-2 Bulan ke-3 Bulan ke-4 Bulan ke-5 Bulan ke-6 Bulan ke-7 Bulan ke-8 Bulan ke-9	Bulan ke-1 Bulan ke-2 Bulan ke-3 Bulan ke-4 Bulan ke-5 Bulan ke-6 Bulan ke-7 Bulan ke-8 Bulan ke-9	
Beri tanda (V) pada kotak bila sudah minum	Beri tanda (V) pada kotak bila sudah mengonsumsi	
Apa itu Tablet Tambah Darah (TTD)? TTD adalah suplemen zat gizi yang mengandung zat besi dan asam folat. Mengapa harus minum TTD secara teratur? Minum TTD secara teratur sangat bermanfaat bagi ibu hamil, karena TTD dapat: <ul style="list-style-type: none"> • Mengatasi S L: • Lesu, Letih, Lemah, Lelah, Lalai dan wajah pucat • Meningkatkan daya tahan tubuh, sehingga ibu hamil dan janin dalam keadaan sehat • Mengurangi risiko pendarahan pada waktu persalinan, kelahiran prematur dan Berat Bayi Lahir Rendah (BBLR) 	Apa itu Pemberian Makanan Tambahan (PMT)? DPMT adalah makanan tambahan yang diberikan kepada ibu hamil, terutama ibu hamil yang kurus yang dapat berupa: <ul style="list-style-type: none"> • Pangan lokal • Pabrikan • Minuman padat gizi Contoh: <ul style="list-style-type: none"> • PMT pangan lokal/daerah setempat seperti: Pempek, siomay, bubur kacang hijau, lontong/arem-arem, kroket kentang, kolak pisang • PMT pabrikan: PMT yang diberikan oleh Pemerintah untuk 90 hari, berupa biskuit lapis • Minuman padat gizi: kacang + telur + gula + minyak 	Bagaimana aturan minum TTD yang benar? <ul style="list-style-type: none"> • Diminum 1 tablet setiap hari selama kehamilan • Diminum saat sebelum tidur pada malam hari • Sebaiknya diminum bersama dengan air putih atau jus buah • Jangan diminum bersama dengan air teh, kopi atau susu Hal-hal yang perlu diperhatikan Ibu Hamil dalam mengatur pola makan: <ul style="list-style-type: none"> • Bagi ibu yang terlalu gemuk, kurangi porsi makanan sumber energi dari lemak dan karbohidrat • Bila ibu terlalu kurus, tambahkan porsi makanan sumber energi dan protein • Usahakan konsumsi makanan dengan porsi kecil tapi sering • Untuk menghindari penimbunan cairan, perhatikan penggunaan garam dalam makanan dan minuman

BEHAVIOR CHANGE INTERVENTIONS MAKE A DIFFERENCE

The MITRA program focused heavily on behavior change initiatives to improve health-seeking behaviors and adherence to micronutrients. Nutrition International supported the development of Behavior Change Intervention (BCI) materials to enable health workers to effectively deliver relevant, contextualized messages for their target beneficiaries. Both health workers and beneficiaries found that BCI materials were effective.



Jeni, Coordinating Midwife, *Puskesmas Kota Kupang* said: *"The BCI materials provided by Nutrition International have been very helpful, especially the IFA flipbook. Whenever we give IFA tablets to a pregnant woman, we use the flipbook so she can clearly understand that taking IFA tablets is important for her and also her fetus, while also learning about the adverse effects of anemia. Their monitoring card has also helped us monitor the consumption of IFA tablets."*



"These days, the midwife explains the benefits of IFA to us using a flipbook with pictures. I am able to understand better as the book has big pictures which I find interesting and easy to remember," said Kholifah, a 27-year-old pregnant woman in ENT Province.

Improved awareness and knowledge regarding micronutrient management has empowered health workers from the project sites to devise innovative ways to deliver micronutrients and provide health services. Taking Nutrition International's lead, provincial and district health offices also extended their full support to develop and replicate BCI materials to be used as learning tools for targeted beneficiaries and the whole community.

Puskesmas in Alor and Manggarai Barat in ENT, and Sampang, Ponorogo, and Bondowoso in EJ were encouraged to develop their own locally-contextualized BCI materials like the flipbook, compliance card, poster and calendar.

In addition, Southwest Sumba district in ENT province and Bangkalan, Pacitan district in East Java provinces established *Layanan Rehidrasi Oral Aktif (LROA)*, or Active Oral Rehydration Service, to administer zinc on-site, provide counseling on zinc adherence, and teach mothers to prepare and administer zinc plus LO-ORS. This initiative strengthened the use of zinc and ORS for diarrhea management by facilitating more frequent meetings, training and budget allocation by DHOs.

Through close collaboration between Nutrition and Pharmacy departments, several districts (EJ province: Jember, Banyuwangi, Sampang, Bondowoso, Lumajang and ENT province: Kupang City, Alor, Ende, Sumba Tengah, Manggarai Barat) procured IFA using *Anggaran Pendapatan dan Belanja Daerah (APBD)*, or Province/District Government Budget Allocation, to ensure the sustainability of IFA supply for pregnant women.

Health workers in Bangkalan, Pacitan, Bondowoso - EJ province, and Sumba Barat Daya, Nagekeo - ENT province conducted home visits to ensure zinc consumption compliance and provided counseling to caregivers of children suffering from diarrhea.



IMPROVED NUTRITION FOR MOTHERS AND CHILDREN

The evaluation of the MITRA Project²⁶ with 10 comparison districts in South Sulawesi province showed improvements on key nutrition indicators.

Consumption of 90 or more IFA tablets during pregnancy increased in both intervention and comparison districts. Anemia prevalence among pregnant women decreased and correspondingly, serum hemoglobin levels showed an increase both in EJ and ENT.

Favorable outcomes were recorded for child health and nutrition indicators – vitamin A supplementation among children (6-59 months) increased from 70% in 2016 to 76% in 2018; diarrhea prevalence among children aged 6-59 months decreased by half in East Java (from 11.1% in 2016 to 4.7% in 2018) and East Nusa Tenggara (from 7.1% in 2016 to 2.6% in 2018) with increased zinc plus LO-ORS usage for diarrhea treatment.

ENSURING UNINTERRUPTED SERVICES

Starting from the district level, the MITRA program supported the integrated cross-department sharing of responsibilities and budgets for micronutrient supplementation programs. Through continued advocacy among government stakeholders, the program led to an increase in investment in nutrition and health programs in ENT and EJ. An increase of 30-60% in budget allocations was observed for different components of the government maternal and child health programs.

The MITRA program shows how collaboration and integration can make a real difference to maternal and child health.

A focus on strengthening the health system and promoting behavior change led to significant improvements in the health and nutrition of pregnant women and children under five.

26 The MITRA project was evaluated using a pre- and post-intervention study design, 2016 to 2018. Two rounds of cross-sectional surveys were conducted in 20 intervention districts of EJ and ENT and 10 comparison districts of South Sulawesi (SS). Multi-stage cluster sampling was adopted, with clusters selected using Probability Proportional to Size (PPS).



Drawing mainly on local resources, this integrated micronutrient model could potentially be replicated and scaled up in other provinces to achieve success.

The feedback from local government and testimonies from the field show that the MITRA program has the potential to boost maternal and child health more widely across the country.



"Prior to this, diarrhea was considered a very low priority in terms of program implementation and budgeting at all levels.

MITRA was instrumental in increasing awareness about the program among DHOs and Puskesmas, hence improving their priority for addressing diarrhea," said Agus Handito of the Hepatitis and Gastrointestinal Infection Sub-Directorate at the MoH. "Now, diarrhea treatment using zinc and LO-ORS is acknowledged as one of the nutrition specific interventions for stunting

prevention. This is critical, as diarrhea among children affects absorption of nutrition and hence increases the risk of undernutrition."

Yosafat Laka, Head of the Health Promotion Section, Alor DHO, ENT Province, said the project has made a real difference.



"The MITRA project improved our understanding of the IFA supplementation intervention. Earlier we used to administer one IFA tablet per day to every pregnant woman. However, through MITRA we learned that if the pregnant woman is anemic, she should be given two tablets per day. Even after the phase-out of MITRA, this education and the principle of integrating various programs will continue. Take the example of Behavior Change Intervention (BCI) materials required for health promotion," said Yosafat Laka.



"Previously, at the planning stage, those BCI materials were ignored. Nutrition International supported us with the package of BCI materials. Seeing the importance of these materials in supporting the maternal and child health program, in 2017, the Health Promotion Department was able to allocate budgets to re-print and distribute anemia prevention dialogue cards, diarrhea treatment posters, and anemia among pregnant women posters for all sub-district Puskesmas, Puskesmas Pembantu (Pustu), Pos Bersalin Desa (Polindes) and Pos Kesehatan Desa (Poskesdes) in Alor. Radio spots on IFA using the native language of Alor were also developed, and has successfully disseminated messages in the community."

MITRA has now expanded the program to include adolescents via the MITRA Youth Project (Box 13).

THE WAY FORWARD

Reduction in stunting prevalence is a priority for Indonesia's government.

StraNas Stunting, the National Strategy to Accelerate Stunting Prevention, is a significant step towards ensuring that all households with pregnant women or children under two years of age get access to a complete package of basic health services essential to prevent stunting.

Nutrition International's MITRA program has contributed to the government's priority area and has successfully introduced innovative approaches, activities, and tools to improve health and nutrition among women and children.

The program has demonstrated the benefits of building bridges between central, provincial, and district governments. It has shown how integrated and coordinated care for pregnant women and children under five is vital to tackle stunting successfully.

It has shown that getting everyone around the same table makes a real difference in the fight against stunting.

Box 13: MITRA Youth - Empowering adolescents with improved health & nutrition

Building on MITRA's successful strategy of multi-sectoral collaboration, Nutrition International has initiated MITRA Youth for adolescent girls in Indonesia.

The MITRA Youth (Weekly Iron Folic Acid Supplementation for Prevention and Reduction of Anemia among School-Going Adolescent Girls) project is an integrated set of nutrition activities (including micronutrient supplementation) that is being implemented in 20 selected districts of East Java and East Nusa Tenggara provinces. In addition to intensifying efforts for improving nutrition education and ensuring diet diversity, MITRA Youth is part of Nutrition International's larger objective to address nutrition issues in adolescent girls to accelerate improved health and well-being among the girls and break the inter-generational cycle of malnutrition.

The overall objective of the MITRA Youth is to improve the nutrition for school-going adolescent girls (15-18 years) through increased access to nutrition information coupled with the consumption of weekly iron folic acid (IFA) supplements. Activities are being implemented to reinstate the government's focus on the needs of adolescent girls for improved health and education outcomes through evidence-based advocacy to the district, provincial and central governments.

(see "West Lombok: A poster child for coordinating the fight against stunting" for another example of nutrition intervention to improve anemia among adolescents)



WEST SUMBAWA: BETTER SKILLS FOR HEALTH WORKERS PAY OFF FOR NUTRITION OF MOTHERS AND CHILDREN



Sometimes an old idea needs a new approach.

Indonesia's ageing system of community health centres (*Puskesmas*) has for decades provided primary health care across an archipelago spanning a distance equivalent to one-eighth of Earth's circumference.

The *Puskesmas* are in the front line in Indonesia's fight against stunting.

Volunteers play a significant role in ensuring communities far and wide get the healthcare they need.

Pencerah Nusantara, an award-winning program which deploys a team, including a young doctor, a midwife, a nurse, a specialist in public health and a nutritionist, to community health centres has played a pivotal role in improving maternal and child health since it started in 2012.

It does so by boosting the skills and knowledge of volunteer health workers (*kaders*) and the knowledge and involvement of local communities in improving nutrition and health for pregnant women, mothers, and children.

Strengthening skills is at the heart of the program's success. The approach is also in line with the National Strategy to Accelerate Stunting Prevention (StraNas Stunting) by focusing on both a "top-down" and "bottom-up" approach.

Ensuring community health centres are adequately staffed and that their staff are fully equipped is crucial to tackle stunting in a strategic and sustainable way.

After it was first rolled out in seven areas in a three-year pilot, its success paved the way for adoption across the country in 2015.



"October 28, 2012, was the first day when I was standing in front of a group of young people. Everyone was below 30 years of age, graduates with a health background. They said they wanted to serve the country. They didn't know at that stage where they were going. But they knew they would live in a remote place for a year. They declared their readiness to serve. We are now in our 7th year into our adventure, everybody has come back safely, thank God. And I see the philosophy of developing the healthcare system from the bottom-up stays within them and could be a playbook for their future," said Diah Saminarsih from the Center for Indonesia's Strategic Development Initiatives (CISDI) Board of Trustees who founded *Pencerah Nusantara*.



LOCAL ACTION TO TACKLE A NATIONAL PROBLEM

Pencerah Nusantara, which means “the Guiding Light of the Archipelago”, has set out to revitalise rural health care by sending teams of professional health care workers into communities to boost health, improve the skills of local volunteers and workers and empower communities. It is different to the *Pegawai Tidak Tetap* (PTT) program²⁷, which contracts individual doctors and nurses to work in remote locations after graduation to deliver curative care for patients.

Pencerah Nusantara makes the most of young professionals with backgrounds in health and other relevant areas. Carefully selected teams made up of a young doctor, a midwife, a nurse, a nutritionist, and a specialist in public health carry out voluntary work in communities for one year.

The volunteers are carefully chosen by CISDI, with support from their partners from sub-national government, academic institutions, the private sector,

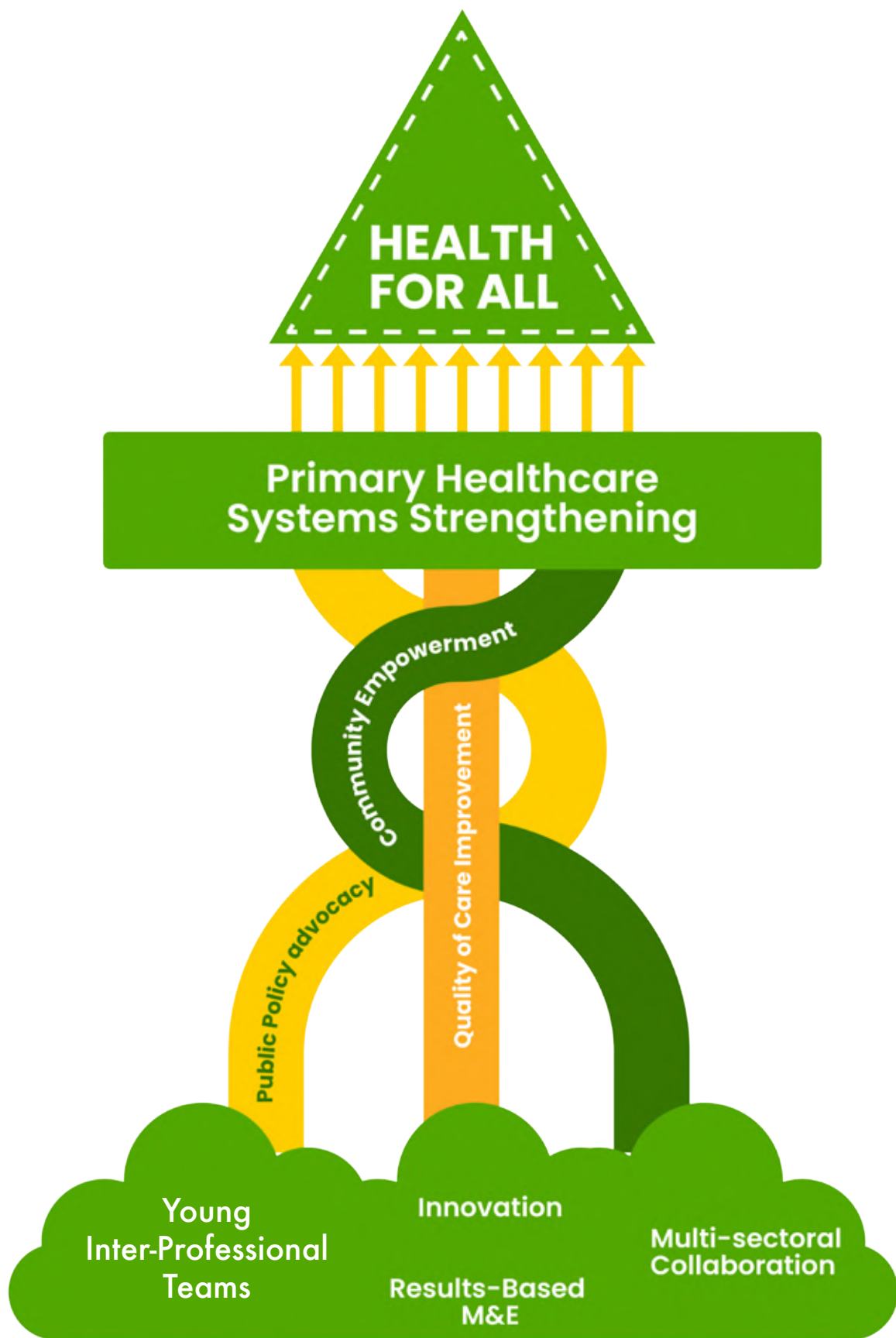
philanthropies and civil society. Team members are chosen based on priorities in each community. Often there is a strong focus on improving maternal and child health and community nutrition.

Pencerah Nusantara encourages interprofessional collaboration, a proven approach to increase the effectiveness of health services delivery (D’Amour et al., 2005). It aims to improve the quality of the health workforce, task-sharing, skill-mixing, and cross-sector collaboration (Saminarsih et al., 2014). The mixed-skill workforce from both clinical and non-clinical professions, provides a comprehensive approach of preventive, promotive, curative, and rehabilitative care.

Pencerah Nusantara strongly believes that quality human resource is the first and main investment in strengthening basic health services, as evident in the *Pencerah Nusantara* model (See Figure 9).

²⁷ The *Pegawai Tidak Tetap* (PTT) or contract employee program was introduced in 1992. Under this program, newly graduated doctors/nurses were contracted for 1-2 year appointment as “non-permanent employees” in a remote *Puskesmas* (Rokx et al., 2010).

Figure 9: Pencerah Nusantara model



EQUIPPING TEAMS WITH SKILLS THAT MAKE A DIFFERENCE

Ahead of their deployment, each *Pencerah Nusantara* team member undertakes seven weeks of training. They receive tailored training to suit the specific needs of their target population.

The teams are equipped with medical, leadership and managerial knowledge and skills. This allows them to build local health providers' capacity, help run *Puskesmas* operations more effectively, and become information hubs for the community.

They are provided with training in communication skills, advocacy, and cross-sector collaboration. It helps to enhance skills, efficiency and collaboration, including with education *Dinas*, *Bappeda*, and others. Cross-sector involvement strengthens the position and strategic role of *Puskesmas* as the main driver of regional health development.

The teams also have skills in cultural adaptation and advocacy, as well as burnout prevention and stress management. Those skills increase the likelihood that health workers are accepted by the community (WHO, 2018).

One *Puskesmas* receives three *Pencerah Nusantara* teams over three years with teams rotating annually. It also focuses on planning, accountability, monitoring and evaluation.

Pencerah Nusantara employs a range of tools for identifying and solving community health problems. The Community Health Survey gathers health-related data (e.g. state of sanitation and nutrition, knowledge about current services and their quality, etc.) at the sub-district level with the involvement of local residents. This participatory approach builds ownership and enables the community to better accept the survey's findings.

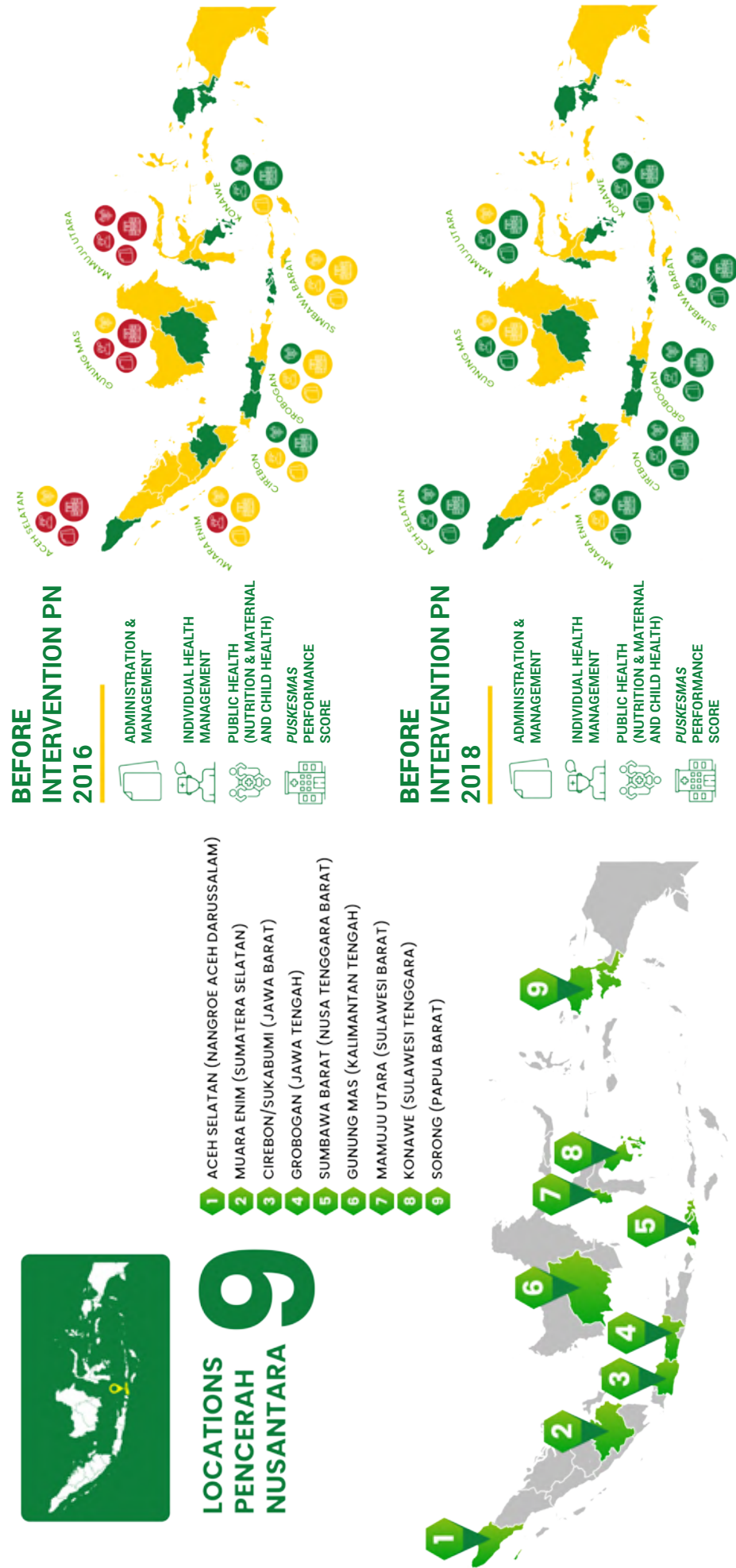
Once the data is analyzed, another survey - the *Survey Mawas Diri* (SMD) or Self-Awareness Survey - assesses opinions of shared responsibility towards health status and service conditions. A village meeting (*Musyawarah Masyarakat Desa*) is then held to determine priority issues, solution design strategy and feasible action plans that identify and mobilize available local resources.

Each *Puskesmas* nurtures *Badan Penyantun Puskesmas*, a community-based forum that functions as a watchdog, and act as an ambassador of health and an extension of healthcare workers in disseminating health promotion messages to the public.

The program has led to improvements in Minimum Standards of Service²⁸ for the *Puskesmas* which received *Pencerah Nusantara* teams (Figure 10).

28 Minimum standards of services are benchmarks of the quality of healthcare delivered by primary health care to be applied by district government. They cover the compulsory service community health centres deliver: primary health care centre management, health promotion activities, environmental health interventions, maternal and child health interventions, nutrition improvement efforts, infectious diseases prevention and eradication efforts, and basic medical treatment (see Minister of Health Regulation No. 741 of 2008 for details).

Figure 10: *Puskesmas* show improvement in standards of delivery after *Pencerah Nusantara* intervention



The pre-service training and on-the-job experience provided by the *Pencerah Nusantara* Program has also succeeded in increasing the readiness of health workers as measured through the Community Readiness Assessment (CRA) tool (Figure 11).

Since its inception, *Pencerah Nusantara* has been designed as a pilot which would be rolled out nationally. Locations of deployment were representative of the country's diversity. The *Pencerah Nusantara* replication manual²⁹ outlines the steps and provides tools and resources so other organizations can develop adapted versions of the program.

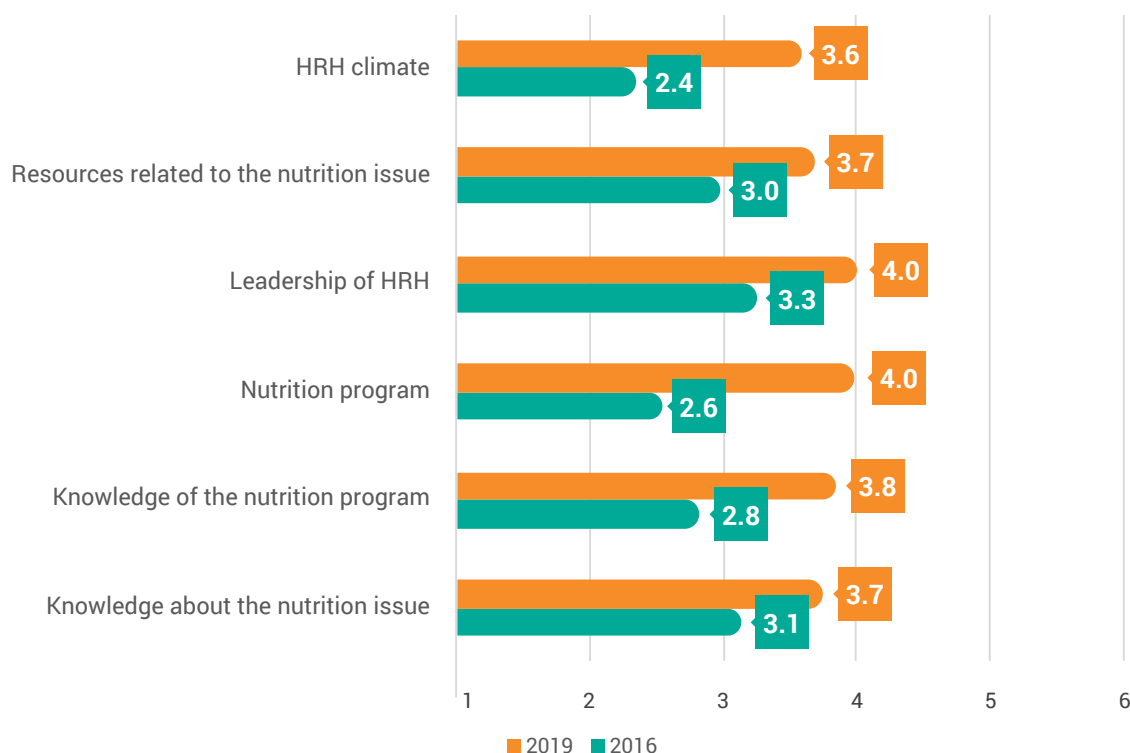
In 2015, the Ministry of Health scaled-up *Pencerah Nusantara* nationally as the *Nusantara Sehat* program ("Healthy Archipelago"). It was launched by the President and directly monitored by the Executive Office of the President. When the program launched in 2015, as many as 120 community health centres (*Puskesmas*) in 44 districts in the remote, border, and underserved areas were selected as the deployment sites.³⁰

The transparency, accountability and responsiveness in their design and delivery led *Pencerah Nusantara* to receive an Open Government Awards in 2015. Till this day, *Pencerah Nusantara* remains a platform for testing new ideas for strengthening primary healthcare locally without extensive funding.

Up until 2019 the *Pencerah Nusantara* program has deployed 222 young health professionals to 16 target locations with more than 262,000 beneficiaries. Various community-based health programs are now available in each village of the participating locations, with full support of local inhabitants.

Today, building from their experience, CISDI has modified *Pencerah Nusantara* program with a special mission to limit human-to-human transmission of COVID-19, care for those affected, and maintain essential health services during the outbreak. The *Pencerah Nusantara* teams are now working with eight *Puskesmas* in COVID-19 red zones in North Jakarta and Bandung.

Figure 11: Change in Human Resources of Health (HRH) readiness assessment indicators after 3 years intervention



²⁹ The *Pencerah Nusantara* replication manual is available upon request from CISDI.

³⁰ In 2017, the *Nusantara Sehat* program was expanded to include an individual-based contract scheme, to accommodate several *Puskesmas* that might need less than five of those health workers. The participants would serve at the deployed place for two years and return after finishing the placement contract. Between 2015-2018 as many as 3,380 *Nusantara Sehat* team participants were sent to 162 districts/cities. In 2017-2018 as many as 3,997 individual *Nusantara Sehat* participants were sent to 225 districts across 29 provinces.



BOOSTING THE NUTRITION OF MOTHERS IN POTO TANO

One of the success stories of the program was a drive to boost nutrition among mothers and pregnant women by providing health workers with the technical skills and support they needed to make a difference in Poto Tano.

This was achieved through training to provide a mix of hard and soft skills.

This included helping nutritionists to learn how to use software and helping staff to plan, budget, monitor and evaluate health programs. Accurate record keeping and use of equipment to monitor the health and growth of children was also a priority.



"Nutrition class materials are adjusted to the problems in Poto Tano sub-district, such as the existence of food taboos and local food potential, such as moringa which can be developed into complementary feeding (PMT Penyuluhan) and healthy food for children," said Laily, the Nutritionists of Puskesmas Poto Tano.



"Pencerah Nusantara taught me to analyze coverage trends. I also learned to collaborate with cross-programs at the Puskesmas and advocate across sectors. I feel that I have more knowledge about nutrition programs," she said.

Another innovative aspect of *Pencerah Nusantara* was to increase the participation of local communities in health activities with the *Puskesmas*.

One such initiative which proved popular and successful was to encourage local communities to improve nutrition by using moringa, a highly-nutritious plant, rich in calcium, iron, and vitamins, to boost nutrition.

The program had invited health center nutritionists and *kader* to make snacks from moringa leaves, including moringa pudding and nuggets. Successful cooking lessons were held in every village in the Poto Tano sub-district.

As a result, regulations were issued for the conservation of moringa trees: *Perbup No. 80 tahun 2017 tentang Gerakan Menanam dan Melestarikan Kelor (Gemari Kelor)*. In addition, the West Sumbawa District Health Office is working with the food industry to produce moringa-based foodstuffs.

The *Pencerah Nusantara* program has made a lasting impact on nutrition program of *Puskesmas* in Poto Tano sub-district. This was assessed through the Potential Sustainability Assessment (PSA), where the team assessed changes to the *Puskesmas* and the local community in regards to nutrition improvement programs.³¹ After 3 years of intervention, there was an increase in the overall scores of nutrition program sustainability - from 2.7 in 2016 to 4.2 (maximum of 5) in 2019. This indicates an overall change in all aspects of sustainability for the nutrition program (Figure 12).

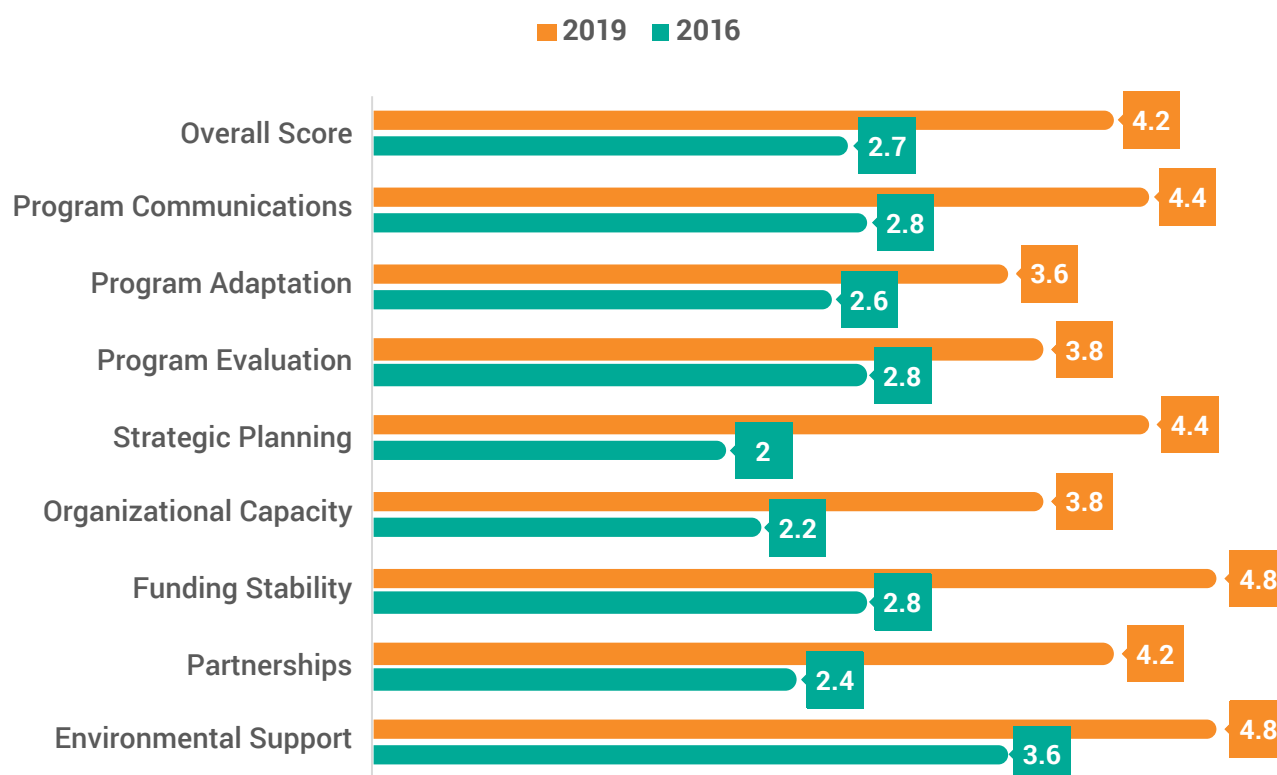
Skills, scale and sustainability by involving local communities and leaders have been at the heart of the program's success.

Sometimes an old idea needs a fresh approach.

Sometimes it also needs new skills to tackle the age-old problem of stunting.

³¹ Program Sustainability Assessment (PSA): a tool for driving the completion of an organizational self-assessment of eight sustainability domains: environmental support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, program communication, and strategic planning. It provides tools to assess domains and develop action plans to increase the likelihood of sustainability.

Figure 12: *Pencerah Nusantara* program improves the potential sustainability of nutrition program at *Puskesmas Poto Tano**



* Potential Sustainability Assessment (PSA) of nutrition programs at *Puskesmas Poto Tano* in 2016, 2019.



TIMOR TENGAH SELATAN: FOSTERING THE FARMING SKILLS OF HOUSEHOLDS FOR A BETTER DIET



Food and farming matter. Nowhere does it matter more than in the southernmost province of Indonesia: East Nusa Tenggara. The right food at the right time is often scarce here.

As a result, stunting and other nutrition issues are a major public health problem. But a program to promote the farming skills of men and women in 4,000 poor households has proved a success in improving nutrition, hygiene, and income.

Seeds and support are at the heart of a program to help poor households, especially those where the mother is raising her family without a partner, grow up to six different types of vegetables and fruits in their gardens throughout the year to diversify family diets. From collard greens, spinach, lettuce, long beans, green beans and tomatoes to eggplant, cassava, sweet potato, pumpkin, and papaya, the program promotes better nutrition with a hands-on approach. Local women were also supported in rearing chickens, constructing chicken coops and healthy cooking skills to increase consumption of nutrient-rich foods. In return, the farmers used their farming tools such as shovel, and watering buckets as their in-kind contributions.

Acute and chronic malnutrition is traditionally a problem in this region. The province of East Nusa Tenggara is one of the highly vulnerable areas of the country, both in terms of food security and undernutrition. The province experiences the highest levels of stunting and wasting among children under the age of five in Indonesia, reaching nearly 52% and 15%, respectively in 2013 (NIHRD, 2013).

The prevalence of stunting here has remained unchanged in the past 11 years, while the national rate has decreased from 48% in 1995 to 37% in 2013 (Central Bureau of Statistics et al., 1996; NIHRD, 2013). Timor Tengah Selatan (TTS) district was one of the worst districts in the province in terms of food security and undernutrition: 70% of children suffered from stunting and 14% suffered from wasting (NIHRD, 2013).

Helen Keller International, as part of the Project Laser Beam (see “East Nusa Tenggara: Project Laser Beam helps mother and children in a remote region with food insecurity”) with support from the private sector, the Mondelēz International Foundation, launched an Enhanced Homestead Food Production (EHFP) program, a nutrition-sensitive agricultural approach to boost nutrition and sustainable access to food in the TTS district between 2012 to 2015.



The EHFP program was a food-based approach to combating malnutrition, designed to bring sustained, lasting improvements to the health and nutrition of vulnerable household members, especially mothers and children (Girard et al., 2012).

Boosting the agricultural skills of women farmers and harnessing their knowledge of nutrition is a powerful weapon in the fight against stunting. That has proven to be the case across the Asia-Pacific region since the Helen Keller first rolled out the EHFP concept in Bangladesh in 1991.

The benefits of the EHFP program included:

- Improving access to and consumption of year-round micronutrient-rich foods
- Promoting essential nutrition and hygiene actions
- Boosting family incomes and livelihoods

Through nutrition training and counseling, targeted households were encouraged to increase the production and consumption of nutrient-rich food such as vegetables, fruits, eggs, and meat. Income from the sale of excess produce was typically used

to purchase micronutrient-rich food and to pay for household expenses, such as healthcare and children's education (Haselow et al., 2016).

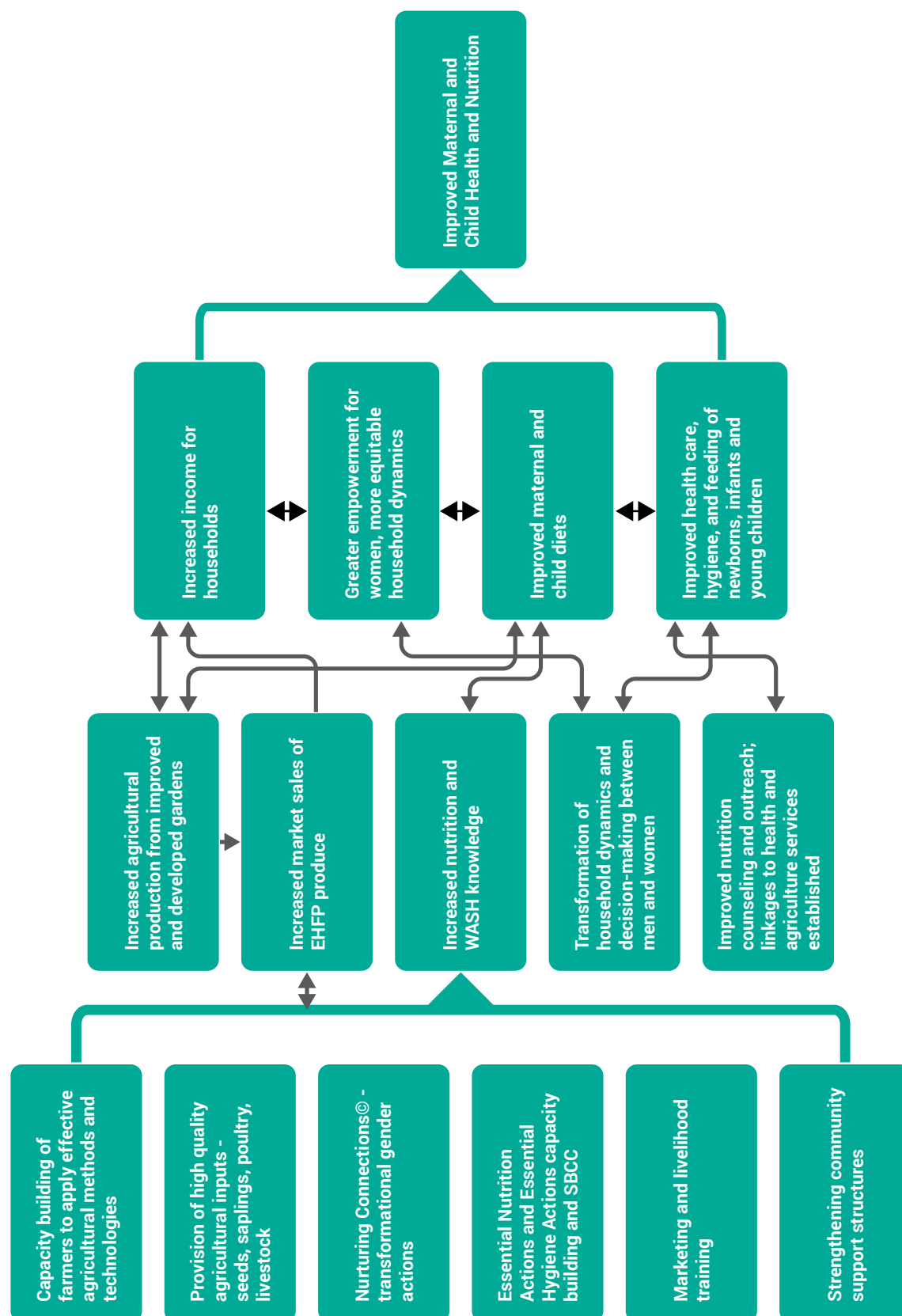


"Helen Keller, through its Homestead Food Production program in our village, has improved my family's life because we now plant organic vegetables and raise poultry, as well as catfish in our yard," said Margarita (Rita) Manes a villager. "Production of those vegetables, chicken and catfish is so good that I can sell some to the market and it has improved our economic condition while fulfilling the basic needs of my family.... I am sure the result of this activity will help me to provide enough money to pay for my children's school fees. I really hope that the government will continue supporting this activity," she added.

In Cambodia, Vietnam, and Bangladesh, other EHFP project sites, the program has enjoyed similar success. Many households there enjoy improved food security and income-generation (Khetran, 2012; Olney et al., 2013).

Figure 13 illustrates the conceptual framework of the relationship between household food production strategies and health and nutrition.

Figure 13: Conceptual framework of the relationship between household food production strategies and health and nutrition outcomes



Source: EHFP minimum program standard (Helen Keller International, 2018)



The EHFP program in TTS district was known locally as Rapid Action on Nutrition and Agriculture Initiatives (RANTAI).

The project targets poor households and households with children under 5 years of age, with a focus on improving nutrition within the “First 1,000 days of life.” This is also known as 1,000 *Hari Pertama Kehidupan* (1,000 HPK), the developmental period of children from conception to two years of age. The Gol’s Stranas Stunting aims to ensure that resources are directed and allocated to support and finance quality priority nutrition activities, particularly among 1,000 HPK households.

The main objectives of the EHFP/RANTAI program were to:

1. Increase diversity and year-round production of fruit and vegetables
2. Increase year-round production of animal-source foods
3. Improve consumption of micronutrient-rich foods, especially among women and young children, through increased production and nutrition-related education
4. Improve health and nutrition of women and children in participating households

RANTAI aimed to improve food security and nutrition for approximately 4,000 remote vulnerable households and their family members. To achieve this goal, Helen Keller divided program implementation into two phases as listed in Table 1. The first phase served as a pilot to test delivery content and modalities before scaling up. This model utilizes existing community structures and systems to establish Demonstration Farms (DFs) to support the beneficiary households. Two hundred demonstration farms were established in TTS district to serve as a sustainable knowledge and information resource for participants.

Table 1: Total households reached through RANTAI

Target	Phase 1	Phase 2	Total
Households	1,601	2,400	4,001
Demonstration Farms (DF)	80	120	200
Villages	40	34	74
Sub-Districts	13	4	17

RANTAI selected household participants based on the following criteria:

- Primary criteria: poor households with young children and/or pregnant or lactating women, as locally determined by key village stakeholders
- Secondary criteria: poor households where the male parent is not in the village or not with the family anymore (regardless of children)

RANTAI mapped the villages to gain an in-depth understanding of the target communities and resources available.

During the village mapping, community members provided information on the total population, agricultural resources (e.g., water, agricultural inputs and family and community assets), animal husbandry inputs, assets, and current practices.

Helen Keller staff also learned about the availability and access to health services at the village and sub-

village level through the mapping exercise.

The village mapping involved all stakeholders in the village, such as heads of village and sub-villages, village midwives, *kaders* (community health volunteers) and community and religious leaders. Criteria for poor households were discussed and agreed upon by all stakeholders; households that fulfilled the criteria were selected and project staff then performed a monitoring visit to verify the selected households. During the visit, Helen Keller staff explained the purpose of the project, the expected roles and responsibilities of each household, and confirmed the household's commitment to participate in RANTAI. The selected households signed a letter of commitment and participation. Then, participating households formed a group and selected a leader to be the head of the demonstration farm.

The number of participating households and the number of demonstration farms has more than doubled over both phases of the program.



DEMONSTRATION FARMS SHARE SEEDS AND FERTILIZER

The role of the head of the demonstration farm was extremely important as this person was the lead resource person in the community showcasing different aspects of RANTAI, linking households with health and agriculture service providers, and maintaining communication with Helen Keller staff and participant households when necessary.

The heads of demonstration farms served as a source of technical assistance to the other households (both participants and non-participants) and distributed agricultural inputs—such as fruit and vegetable seeds and fertilizer. The project provided seeds for a variety of micronutrient-rich foods, prioritizing commodities that were both nutritious and could be sold in local markets.

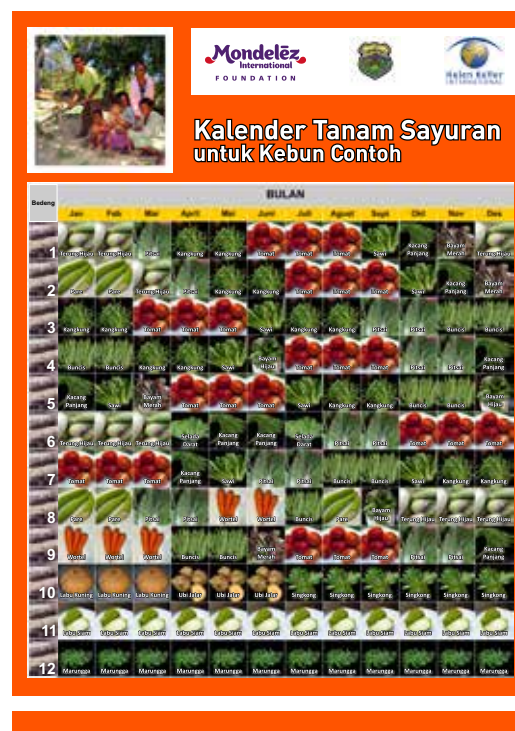
These seeds produced vegetables native to the district. The goal was for each garden to grow four to six different types of vegetables throughout the year to contribute to a diverse diet. The project also taught the households how to use rainwater harvesting for irrigation.

To assist in planning what to grow in the garden, each participant received a planting calendar to identify the best time to grow each vegetable by months as shown in Figure 14. This planting calendar—usually hung on the participant’s wall—was also used as a teaching tool during refresher meetings.

Helen Keller held routine refresher meetings throughout the program to get updates on activities in the demonstration farms, learn how to administer and fill out the monitoring forms, share success stories and challenges, and revise each demonstration farm’s work plan based on discussion and sharing.

RANTAI promoted the use of local seeds based on the results of germination tests conducted by project staff, and trained the participants on using low-cost materials resources that were available within their community to increase sustainability.

Figure 14: Horticulture planting calendar



REARING CHICKENS FOR EGGS AND MEAT

RANTAI also promoted raising chickens as the eggs and the meat could provide an animal source of protein for households and generate income from the sale of surplus eggs and meat.

RANTAI provided chicks (aged 10-12 weeks) to the participants to raise. Heads of demonstration farms received 20 chickens (15 females and five males) and members of demonstration farm groups received six chickens (five females and one male). Helen Keller purchased these chickens locally in the villages, and provided training on raising chickens including producing feed for poultry using locally available materials such as corn, rice, green beans, fish, and coconut. The project also taught families how to construct a chicken coop, and the nutritional value of chickens, eggs, catfish and other animal sources of protein. With the help of the District Animal Husbandry Office, the heads of demonstration farms vaccinated chickens against common illnesses to prevent disease and reduce mortality.

INCORPORATING NUTRITION EDUCATION INTO WAY OF LIFE

At the start of the project, Helen Keller conducted research to adapt the RANTAI program locally. The results showed that local people obtain information about nutrition from a number of sources including from family members, community and religious leaders. The church has strong links to the community down to the village level. Helen Keller staff routinely met with key religious leaders in the community to discuss how they can help to provide nutrition education to their congregation in RANTAI-supported areas. The other important findings were the role of mother in-laws: they have great influence over infant and young child feeding practices and family feeding. As a result, they were encouraged to play an active role in nutrition education training and meetings (Mardewi, 2013).

Incorporating nutrition education into agricultural projects is likely to improve consumption and related nutrition (FAO, 2016). RANTAI provided nutrition education training to the heads of the demonstration

farms, who facilitated nutrition education sessions to members including mothers and mothers-in law to encourage families to use fruit, vegetables and animal sources of protein that are rich in micronutrients for their own consumption. They also encouraged the use of iodized salt, consumption of diverse diets, food safety, handwashing, and participation in health and nutrition services.

To help a family to prepare healthy and delicious meals for children, Helen Keller conducted popular cooking demonstrations and created a family recipe book to guide mothers on how to prepare nutritious meals at low cost (Figure 15). The book contains special recipes for different age groups, nutrient content of the meals with their cost, and tips and tricks to cook healthy meals using ingredients that were available locally, focusing on foods that were familiar to the participating families. Materials included pictorial descriptions to aid those with low levels of education.

Figure 15: Recipe book cover and example of recipe



IMPROVING DIETS USING LOCAL INGREDIENTS

Helen Keller collected data at the beginning and the end of the project as part of baseline and endline studies and found important and significant changes in project households, associated with improved nutrition and health-seeking practices. The data from the endline studies showed that the number of households with an acceptable diet, as shown by Food Consumption Score (FCS – an estimate amount of quality food eaten by households) improved considerably from 34% to 67% ($p < .0001$) in phase 1.

Households in phase 2 also experienced an improvement in FCS from 47% to 59% at the end of project. However, this difference was not statistically significant.

The households participating in phase 1 were less likely to have an acceptable diet at baseline as compared with phase 2 households at baseline. The change was higher in phase 1 households as they had an additional year to implement the program compared to households in phase 2. Additionally, the sample for the endline for phase 2 may not have been sufficient to detect a statistically significant difference.

Household food insecurity, as assessed using the Household Food Insecurity Access Scale (HFIAS), also improved significantly. Nearly 30% of households in phase 1 were severely food insecure at baseline. This dropped to less than 10% at the end of the project ($p < 0.05$). Similarly, more than 30% of households in phase 2 were severely food insecure at baseline. Again, this fell significantly to 18% by the end of the project.

The data also showed that children from households in both phases were consuming more vegetables, meat and eggs at end of the project, although for meat and eggs, this change was only statistically significant in phase 2 households ($p < 0.05$) (Helen Keller International, 2016).

Helen Keller's EHFP model complements the Ministry of Agriculture's model for food security: *Kawasan Rumah Pangan Lestari* (KRPL). Both work to improve household food security and income generation.

However, the EHFP model places greater emphasis on health and nutrition improvement for children and pregnant and lactating women.

The Ministry of Agriculture intends to scale up the KRPL model across Indonesia. Helen Keller has already shared the project's materials and lessons learned from EHFP with the Ministry of Agriculture for potential collaborations and replications, and intends to continue sharing this data with key stakeholders to inform national policy and programming for food and nutrition security. Local government representatives were also involved and informed about the project results and recognized the benefit of the RANTAI project to communities.

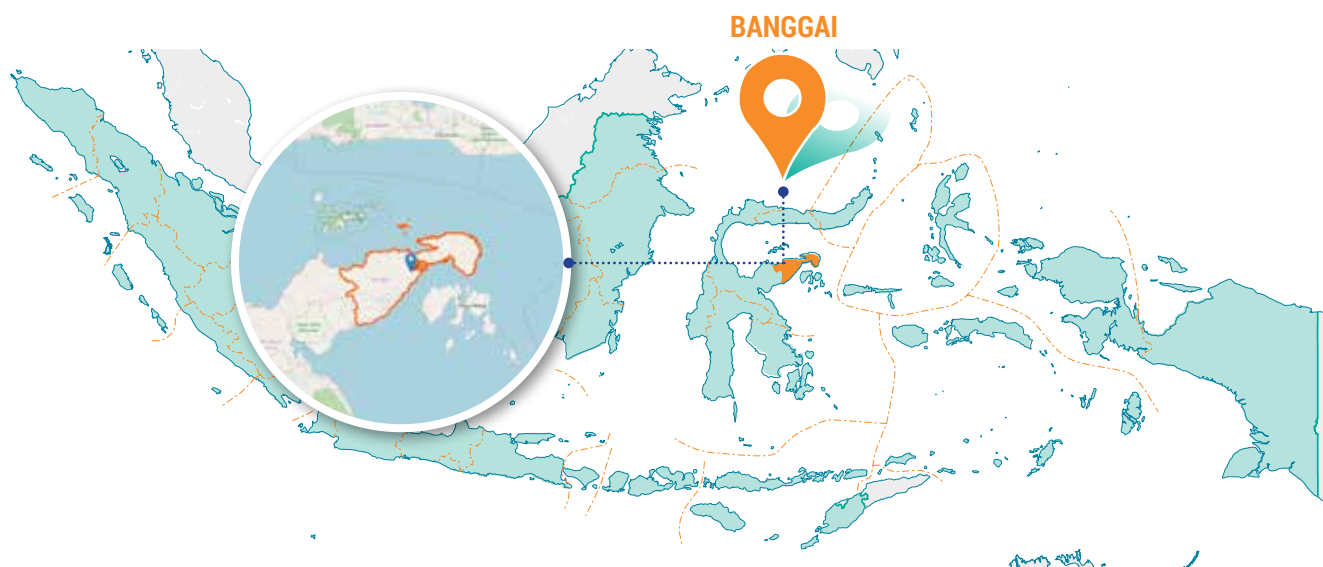


"The farmers groups formed in Tune Village are very helpful because they raise chickens for eggs and meat consumption. It is also very helpful for planting vegetables, so people that used to shop in a market in the city can pick it up from their own yard now. The village government is willing to help the management and distribution of the produce to increase income in the households," said Arid Oematan, Chief Financial Officer of Tune village.

Community based nutrition sensitive agriculture programs can help to ameliorate food insecurity and improve dietary intake, even in the poorest and most remote communities. The use of a pilot period allowed the project to test modalities and adjust implementation delivery before scaling to a larger community. The sustainable model has produced statistically significant results.



BANGGAI: ACADEMIA AND DISTRICT LEADERS COLLABORATING FOR IMPACT



Universities are more than places of knowledge, skills, and learning. They are beacons of hope in communities suffering from high levels of maternal mortality and child stunting.

Increasingly universities in Indonesia are playing the vital role of mentors to local government officials seeking to step up Indonesia's drive to improve maternal and child health. In Central Sulawesi, experts from two institutions - Hasanuddin University (UNHAS) and *Institut Gizi Indonesia* (IGI) – have lent their knowledge, skills and learning to local government officials since 2014 in a successful program based on mentoring and supervision of workshops, taskforces and working groups seeking to improve health for mothers and children in Banggai District.

Supported by the Ministry of Health and the District Government of Banggai, the program is a departure from more tried and tested health collaboration between local government and universities. The focus is on support, facilitation and mentoring with

local government in the driving seat, carrying out all activities directly.

One initiative, which provides health checks and health and nutrition counseling to all women of reproductive age in the district, and has proved particularly successful in boosting the health of mothers and children during the first 1,000 days of life (1,000 *Hari Pertama Kehidupan* or 1,000 HPK).

The *Posyandu Pra-Konsepsi* or Preconception *Posyandu* emerged in 2015 after discussions between local officials and their academic partners.

With a maternal mortality rate of 267 deaths per 100,000 live births in 2014, the root cause of maternal deaths in the District of Banggai was thought to be linked to malnutrition among pregnant women (Dinas Kesehatan Kabupaten Banggai, 2019). It soon became clear that intervening early (before conception) was crucial to maternal health and child health.

Despite existing programs to address malnutrition among pregnant women, such as iron folic acid supplementation and family nutrition programs, the prevalence of anemia and malnutrition among pregnant women remained high. This could be attributed to late contact for the first antenatal care (ANC) visit, which typically occurred in the second trimester. There was also a high prevalence of anemia among adolescent females. Relationships between pregnant women, the midwife or healthcare workers were not strong.

In March 2015, the Preconception *Posyandu* was launched in sub-districts and villages.

The program drew on a coalition of support, including the members of the *Pemberdayaan dan Kesejahteraan Keluarga* (PKK) or Family Welfare Movement, officers from the Religious Affairs Office and sub-district and village government.

By the end of 2015, all *Puskesmas* in the district of Banggai had successfully launched the Preconception *Posyandu*.

Women of reproductive age were offered health checks and nutrition counseling, either when they enrolled in pre-marriage courses through the Office of Religious Affairs or when they were visited by officials for *Program Indonesia Sehat dengan Pendekatan Keluarga* (PIS-PK) data collection or identification.

All participants received anthropometric measurement services, including upper mid-arm circumference and hip circumference measurements, blood pressure measurement and monitoring, proteinuria testing, hemoglobin testing and iron-folic acid or micronutrient vitamin supplementation. Participants were also required to attend preconception counseling classes.

POSITIVE EARLY RESULTS FROM THE PRECONCEPTION POSYANDU PROGRAM

Local regulations³² help to ensure the sustainability of the program. Early results are positive, with rates of anemia and maternal mortality dropping considerably in just one year (Table 2).

Table 2: Preconception *posyandu* program indicators, 2015 - 2018

Indicator	2015	2016	2017	2018
First ANC (Average week of pregnancy)	16	4.2	2.6	1.8
Anemia Prevalence	46%	18%	12%	10.4%
MMR (per 100,000 live births)	206	180	154	143
IMR (per 100,000 live births)	13	11	8	7
Stunting prevalence	35.6% (Riskesdas, 2013)	Unavailable	Unavailable	31.2% (Riskesdas, 2018)

Source: Dinas Kesehatan Kabupaten Banggai, n.d.

32 Banggai Regent Regulation No. 33 of 2015 concerning Integrated Women's Services for Banggai Regency Preconception; Decree of the Regent of Banggai No. 440/230/Health Office About the Formation of the First 1000 HPK Movement Task Force Team in Banggai Regency.

Deep commitment to multisectoral convergence to address nutrition and stunting translated into concrete steps taken at the district, sub-district and village levels.

This was achieved by creating the First 1,000 Days of Life Task Force, meeting every three months to provide more in-depth understanding of stunting prevention measures. Stunting forums were also held at the sub-district level every three months. Stunting working groups were also formed in villages. IGI and UNHAS provided advisors for these activities.



“The key to successful nutrition leadership in Banggai District lies in the leadership and technical competency of its leaders – from the Head of the District to the Head of the Bappeda, allowing them to approach the challenge from both programmatic and budgetary aspect,” added Prof. (Em) Soekirman.

Although the initiative was established before StraNas Stunting, the steps taken strongly supported the convergence actions of the GoI's StraNas Stunting.

Grass roots involvement is key. Village heads, midwives and subdistrict heads are invited to task force meetings. Plans are adapted to the needs of each village, supported by academic staff.

The sub-district government functions as a supervisor and verifier, while the village government functions as a planner, implementer and monitor for stunting countermeasures in the area. Research by students from UNHAS under supervision of IGI has helped to

provide policy and planning insights, including for budgeting, in sub-districts and in villages.

At the village level, a model of family coaching in PIS-PK was used. In the program, each Family Guide (FG) provides coaching and monitoring for 100 families.

These FG workers were recruited from amongst a pool of health workers. Every FG was assisted by 10 *Dasawisma*³³ *kaders* in which he or she supervised 10 families. Evaluation of the results was done through the Jamboree of *kader*. This data collection has been carried out since June 2019.³⁴

The “mentoring model” in Banggai District has proved an inspiration to others. It has been replicated in other districts. In November 2019, an agreement to implement the mentoring model was signed by the Chancellor of Universitas Hasanuddin and four districts and one city: Majene, Mamasa, Polewali Mandar from West Sulawesi Province, Pidie from NAD Province and Pare-pare City in South Sulawesi Province. In 2020 other parts of Sulawesi committed to replicate the model too.

The Ministry of Health is now backing plans to roll out the model in 16 universities across Indonesia. This is coordinated by IGI. The Ministry of Health is providing IDR 500 million (approximately USD 35,000) to each University to mentor each district. Universitas Hasanuddin received the same amount to continue mentoring in sub-districts, villages and households in Banggai.

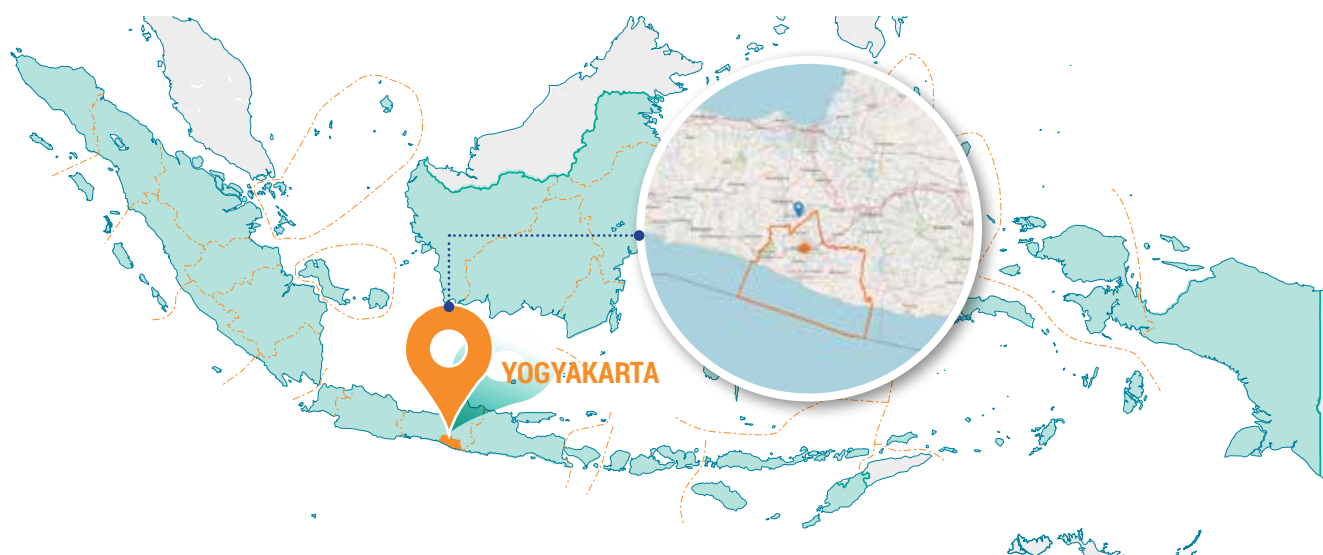
Mentoring, for the local officials, is making a real difference to health and wellbeing.

33 *Dasawisma*, means a block of 10 houses. It was an old PKK concept that is refunctioned to reach all families in the area.

34 Jamboree of *Kader* is a meeting at the *Puskesmas* level, where monitoring and evaluation of data updating is conducted, as well as surveillance to resolve the problems encountered. Jamboree participants include *Posyandu kaders*, PK and *Dasawisma kaders*. The Jamboree moderator is the Regent/Vice Regent.



YOGYAKARTA: AWARD-WINNING SANITATION CLEANS UP CITY'S RIVERBANKS



Yogyakarta is not known as a riverine city. The waters coursing through it do not characterize the place in the way London is defined by the Thames, Paris by the Seine, or Bangkok by the Chao Phraya.

Three main rivers run through the urban areas of Yogyakarta: the Winongo, the Code and the Gajahwong. These strips of brackish water scarcely get seen by most guests more interested in shopping on Malioboro Street or looking at the Hindu sanctuaries that encompass the city.

The Gajahwong is the easternmost of the city's three rivers. It is in informal settlements, along the river's banks, that a community-led campaign has successfully helped to combat diarrhea and other diseases linked to poor child health and stunting.

Although the campaign was community-led, the community living along the Gajahwong river worked hand-in-hand with the local authorities and other stakeholders on the health and sanitation campaign.

The impetus for this change were public events at which the community was shown how fecal contamination spreads from exposed excreta to their living environments and food and drinking water.

During these events, a map of the urban ward was drawn on the ground and communities were asked to indicate where they live, where they defecate, and the routes they take there and back. This illustrated that everyone was ingesting small amounts of each other's feces. Shock and disgust led locals to declare the area an open defecation free (ODF) community and hence, efforts to clean up the city's riverbanks started in earnest.

CHANGING COMMUNITY PRACTICES THROUGH BEHAVIORAL CHANGE

The District Health Office led the change through the implementation of a *Sanitasi Total Berbasis Masyarakat* (STBM) or Community-Led Total Sanitation (CLTS) strategy, which encouraged the community to discuss the negative health consequences of existing sanitation practices. It did so rather than adopting the more traditional approach of providing sanitation facilities or subsidies to build them. The aim was to achieve universal access to a clean water, better sanitation and zero slums (the 100-0-100 program).

Rather than rely on authorities alone to provide better sanitation facilities, the local community agreed on five steps to improve sanitation in the community. The first step was to make it socially unacceptable to engage in open defecation. The second step was to encourage hand washing with soap and the third was promoting safe water treatment and safe food handling practices in homes. The fourth was the safe disposal and management of solid waste. The fifth was the safe management of wastewater by households.

The community's behavior has changed, reducing the risk of contamination from *Escherichia coli* (*E. coli*), a bacterium causing diarrheal disease. Town hall meetings and public events encouraged people not to throw waste and refuse into the river. Signs warned about the danger of not keeping the river clean. The program focused on community mobilization to stop open defecation. The government's focus also shifted from constructing treatment facilities. Instead it encouraged the community to manage its own waste by emptying septic tanks, recycling treated sludge and upgrading leaking pits to standard septic tanks.

The community-based approach builds on existing patterns of social organization, values, and local traditions. For example, the local mosque makes an

announcement when homes need to flush waste on a weekly basis – not into the river – but into septic tanks.



"We observed a decrease in the community's tolerance of open defecation. The award-winning CLTS program is associated with a decrease in roundworm infestation. In recent years we started to see this having a significant impact on nutritional intake and as reflection in declining numbers of anemia and weight or height gains," said the local Puskesmas' Bidan (midwife).

The *Kampungs* – small, almost self-sufficient communities – that hug the river have been on the frontline of the fight for better sanitation for decades. It is here that the threat of poor sanitation is most pronounced. Dense housing, poor sanitation and open defecation were problems which blighted the health of local communities for generations (Kumrotomo et al., 1995). The residents of the riverbank tend to be migrants who work in the informal sector in Yogyakarta. They come from areas around Yogyakarta such as Klaten, Wonogiri, Magelang, Purworejo, and even some cities in West Java.



"Back in the 1970s, despite being so close to the river, people had no fresh running water. Instead they had to draw it from wells manually every time they wanted to bathe or do their laundry. For all the activities along the riverbank, the actual water itself was a mess. The river had also been used as a public toilet as well as the place for garbage disposal. People continued to throw their trash into the stream, which in turn provides opportunities for the less fortunate who wade the waters looking for rubbish that may have a resale value," said Sukanto who lives around the Gajahwong Valley.



SEPTIC TANKS SPILLS LINKED TO STUNTING RISKS

Most families here rely on septic tanks located under or close to their houses, but many are not watertight. There is even a popular misconception in Indonesia that a good septic tank is one that leaks, as it will not need to be emptied. As a consequence, only a few households ask for their tanks to be emptied regularly by calling either public or private service providers.



"Most of my neighbours have a septic tank at home. The public well was located near some of them, so I know the water was contaminated," said Teti, a housewife. She was also aware of the consequences. "Bacteria from the septic tank is a health hazard to my family, especially my children. They can get diarrhea or not grow as well as other children their age," she said.

Open defecation and untreated wastewater and contaminated water facilitate the spread of fecal borne illnesses.

Two of the four main causes of death for children under five in Indonesia (diarrhea and typhoid) are fecal-borne illnesses linked directly to inadequate water supply, sanitation, and hygiene issues. About 11% of Indonesian children have diarrhea in any two-week period and it has been estimated that more than 33,000 die each year from diarrhea (NIHRD, 2018). StraNas Stunting aims to address water, sanitation and hygiene challenges through its multisectoral approach.

Diarrheal diseases and intestinal worms are also a significant cause of malnutrition – by reducing normal food consumption and nutrient absorption. This can lead to impaired physical growth, reduced resistance to infection, and long-term gastrointestinal disorders.

Yogyakarta is not alone. Today, about half of Indonesia's population live in urban areas. Estimates show this will rise to around 68% by 2025. Progressive approaches to urban sanitation have led to millions of Indonesians gaining access to improved services over the past decade – but inequality persists. Currently, of the 29.6% of urban households with access to piped water supply, the bottom 40% make up just 7.5%, whereas the top 60% make up 22.1%. Although the vast majority of households in urban areas use a toilet connected to a septic or sewerage system (78%), less than two percent of those are connected to sewerage (World Bank, 2017a).

In addition, it is the persistent gaps in service quality—rather than barriers to access—that is the main challenge facing Indonesia in its drive to achieve the Sustainable Development Goals (SDGs). Although most households are gaining access to drinking water and sanitation due to rapid urbanization and increasing living standards, not everyone is benefitting from the same quality of service.

POOR SANITATION DAMAGES HEALTH AND THE ECONOMY

Despite these gains, an estimated 95% of fecal waste still makes its way into the nearby environment due to poor quality on-site septic tanks, lack of adequate emptying and disposal, or poorly functioning wastewater treatment.

These conditions raise the cost of water treatment, and lead to environmental degradation, greater risk of disease, and poor child health and stunting.

The poor in urban Indonesia are not only less likely to have adequate sanitation but are more likely to live in areas where their neighbors also lack these services. Failure to address the sanitation conditions of urban dwellers, especially those living in informal settlements, could exacerbate inequalities, and is among the greatest threats to the inclusive growth and sustainability of Indonesian cities (World Bank, 2017a).

From the government's perspective, riverbank areas are also not ideal for settlement because of their vulnerability to climate change and natural disasters, such as flooding.

The economic impacts of poor sanitation in Indonesia are significant.

A study carried out by the World Bank's Water and Sanitation Program estimates that Indonesia lost IDR 56 trillion (approximately USD 6.3 billion) in 2007 due to poor sanitation and hygiene, equivalent to about 2.3% of the country's gross domestic product (World Bank, 2013).

Underinvestment in urban infrastructure and lack of adequate planning limits the potential economic growth and development benefits of growing cities and contributes to widening inequalities. Over the past decade, for every one percent increase in urbanization, Indonesia achieved only two percent gross domestic product (GDP) growth, below the return on urbanization in other Asian countries such as China, Vietnam, and Thailand, which have significantly benefited from economies of agglomeration.

Yogyakarta has played host to many initiatives aimed at improving water, sanitation and hygiene infrastructure and practices (Box 14).



Box 14: Yogyakarta - The host of sanitation initiatives

In 1984/1985 the government of Yogyakarta launched its first *Kampung Improvement Program* (KIP). This program aimed to overcome further *Kampung* deterioration by improving their physical environment and sanitation (BAPPENAS & UNICEF, 2015). Pavements, water drainages, squatting toilets (*Jamban Keluarga*), clean water facilities and sewerage systems were built with the KIP funding. *Kampung* conditions improved in some parts of the slum. But the influx of people residing in the slum meant the settlement continued to grow.

Beginning in 2000, the central government, coordinated by *Bappenas*, embarked on a series of initiatives to reform water supply and sanitation policies. These reforms were aligned with decentralization which devolved responsibility for sanitation to local government. Acceleration of the *Percepatan Pembangunan Sanitasi Permukiman* (PPSP) or Urban Sanitation Development Program was established to assist local government in comprehensive citywide sanitation planning through the preparation of *Strategi Sanitasi Kabupaten* (SSK) or City Sanitation Strategies.

Yogyakarta realizes that to be designated as an area with a high human development index (HDI), DIY must be able to continue its healthy environment policy and implement an innovative program that is simple for the community to replicate.

Yogyakarta city released its first strategic plan in 2007 (Pemerintah Kota Yogyakarta, 2007) and joined the *Aliansi Kabupaten dan Kota Peduli Sanitasi* (AKKOPSI) or Alliance of Cities and Districts Concerned about Sanitation in Indonesia in 2010, committing at least two percent of its budget to sanitation. In addition to that, Yogyakarta Governor Sri Sultan Hamengku Buwono X launched *Yogya Sadar Sehat* in 2010.

The Governor said that healthy awareness must begin with healthy behavior and environments. His policy at that time was realized with the settlement of a sanitation structuring program by inviting residents to separate livestock pens from

homes, provide communal toilets for people who do not have healthy toilets at home. The houses must be built away from the riverbanks ("*Mindur*") and in higher areas ("*Munggah*"), living rooms must be re-located to face the rivers ("*Madhep*"), and provide legality for communal water sources which is managed by the community called the *Sistem Penyediaan Air Minum Desa* (SPAMDES) or Rural Drinking Water Supply System which subsequently developed into the *Paguyupan Air Minum Masyarakat Yogyakarta* (PAMMASKARTA) or Yogyakarta Community Drinking Water Society. Watershed Communication Forum (*Forum Komunikasi Daerah Aliran Sungai, Forsidas*) was created and fostered by the government.

The Asian Development Bank also helped Yogyakarta, Sleman and Bantul districts (agglomeration known as *Kartamantul*) to rehabilitate and expand sanitation facilities through the Metropolitan Sanitation Management and Health Project. Executed by Department of Public Works, Housing and Mineral Energy Sources of the Special Region of Yogyakarta, the project built communal sanitation facilities in poor areas and provided support to mobilize community involvement in the planning, operation and maintenance of these facilities. It also built wastewater treatment and rehabilitated and expanded sewerage systems for settlements along rivers and in flood areas (Ministry of Public Works and Housing, n.d.).

Other funding for sanitation infrastructure in Yogyakarta is the Community-based Water Supply and Sanitation Project (PAMSIMAS). Yogyakarta has received PAMSIMAS funding from 2014-2019. The PAMSIMAS project supported more than 190 villages: 55 villages in Bantul Regency, 52 villages in Kulonprogo Regency, 50 villages in Gunungkidul Regency and 40 villages in Sleman Regency. The facilities that were built included communal latrines and communal drinking water facilities. The project also included upgrades to other sanitation facilities.



In Yogyakarta, concrete actions were taken to address the situation. Thanks to the directions and guidance of the Governor, who is also the Sultan of Yogyakarta, the local government implemented policies and programs to improve the health and sanitation of the communities living along the riverbanks. Residential areas along the river were tidied up and public spaces were built, providing the community with clean and comfortable space for social interactions.



"Before, we would transport the sludge from one place to another. Basically, just moving the problem to a new location," said the head of Domestic Wastewater Processing in Kampung Gambiran. "With the new treatment plants, it is easily solved."

Treatment plants with a more compact design are working well.

The community has led the clean-up.

The riverbanks are starting to bloom as attitudes change.

The border line (*Sempadan*) along the rivers have turned into alleyways filled with flowers and fruit trees.

This has provided an incentive for locals to move their doors to face the riverbank.

When they open the door, they do so safe in the knowledge that sanitation in their community has changed and changed for good.

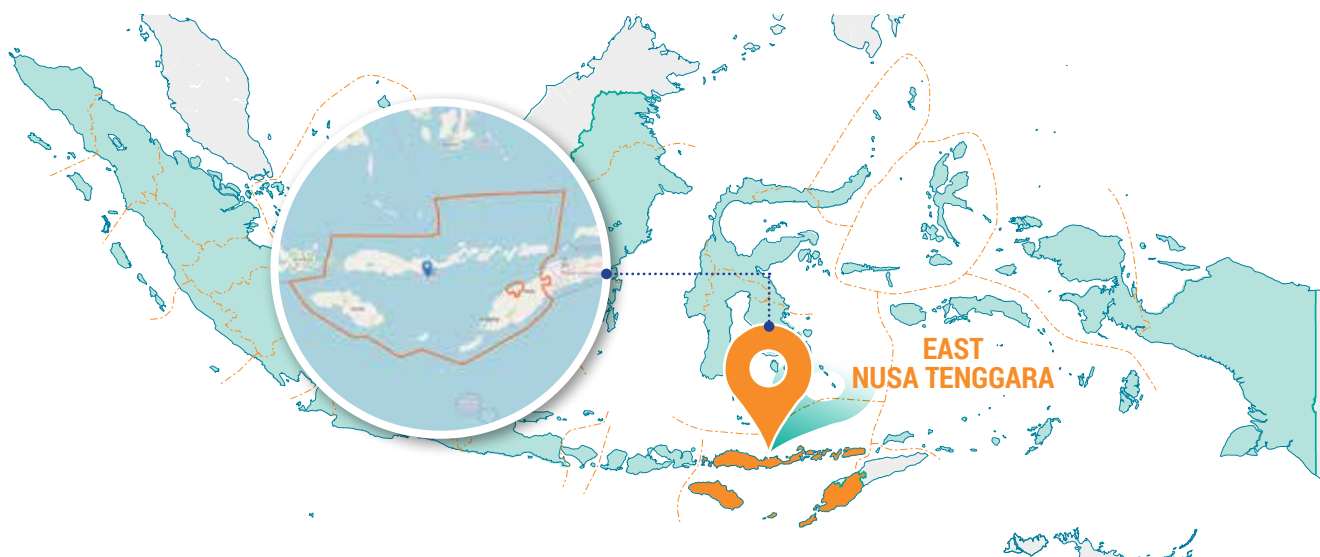


03

CHAPTER 3 SNAPSHOTS: LESSONS LEARNED FROM IMPLEMENTATION



PUBLIC-PRIVATE PARTNERSHIP: THE EARLY ADOPTER OF CONVERGENCE IN A REMOTE REGION WITH FOOD INSECURITY



In 2011, seven years before the start of the StraNas Stunting, Timor Tengah Selatan (TTS) district in East Nusa Tenggara (ENT) Province was the project site for one of the earliest initiators of a multisectoral approach to addressing child undernutrition, Project Laser Beam (PLB).

Ahead of its time, Project Laser Beam focused on addressing child undernutrition in a holistic manner. It addressed both the direct and the underlying causes of undernutrition throughout the life cycle of a child (Box 15).

In 2009, this was a novel concept.

It followed evidence from the Lancet Series on Nutrition, which in 2008, had set out new information in a number of areas such as greater priority for national nutrition programs, multi-sectoral approaches, better coordination in nutrition systems, and highlighted the importance of focusing programs on the first 1,000 days of a child's life as well as using integrated approaches to improve child development (Lancet, 2008).

The idea for a multisectoral partnership was first conceived at the World Economic Forum in Davos in January 2009. Upon its launch in September of 2009, five major organizations - the United Nations World Food Programme (WFP), the Global Alliance for Improved Nutrition (GAIN) and private sector partners Unilever, Mondelez International Foundation (formerly Kraft Foods Foundation), and Dutch life sciences group Royal DSM committed to a five-year public private partnership. The partnership aimed to create a scalable, replicable, and sustainable program model to significantly reduce child undernutrition, contributing to the achievement of the first Millennium Development Goal (MDG) of eradicating poverty and hunger (WFP et al., 2015).

In Indonesia, this collaboration was expanded to include Indofood and Garudafood Indonesia – both major players in the local food industry. Other partners include the Government of Indonesia, Helen Keller and *Yayasan Kegizian untuk Pengembangan Fortikasi Pangan Indonesia*.

Box 15: What is Project Laser Beam

Project Laser Beam's aim was to create sustainable, scalable and replicable solutions to significantly reduce child undernutrition.

Project Laser Beam addressed child undernutrition through nutrition-specific and nutrition-sensitive interventions. Specifically, it did this through four programmatic pillars.

First, it directly provided food and micronutrients through the Food and Micronutrients Pillar.

Second, it provided clean drinking water and sanitation facilities through the Water and Sanitation Pillar.

Third, through the pillar of Health and Hygiene, it addressed the direct and underlying causes of undernutrition related to lack of basic healthcare/hygiene and nutrition deficiencies.

Lastly, it provided sustainable opportunities for communities to address the underlying cause of undernutrition through the Food Security and Income Generation Pillar.

FOCUSING ON TIMOR TENGAH SELATAN (TTS)

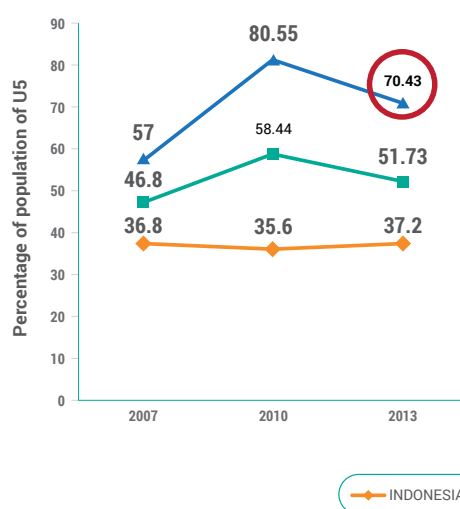
As its name suggests, the partnership had a “laser beam” focus on selected countries and regions, namely Bangladesh and Indonesia, to maximize the collective impact of interventions in areas of great need. Both countries have high levels of stunting and wasting amongst children under five (UNICEF, 2013).

In 2010, PLB brought the multisectoral approach to address child undernutrition to TTS. It aimed to improve the nutrition and food security situation in TTS district.

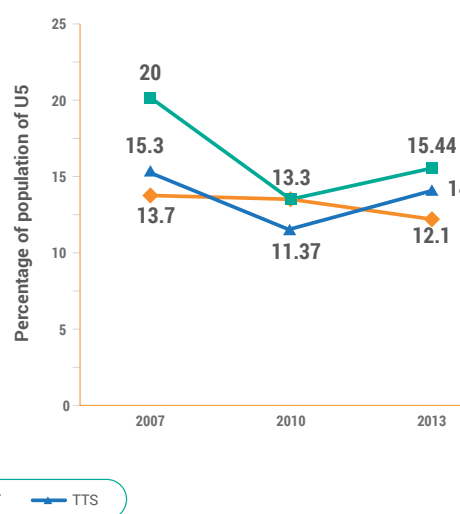
TTS was one out of 22 districts in ENT that ranked as most food-insecure in the province and continued to face a combination of acute and chronic food insecurity due to issues of food access and utilization (WFP, 2009). This contributed to severe undernutrition among its population. Rates of wasting stood at 14% and stunting rates were as high as 70% for children under five in 2013 (see Figure 16). And not only children, one in four women of reproductive age were too thin and micronutrient deficiencies were of concern, both for women and children. The situation in TTS was critical.³⁵

Figure 16: Prevalence of stunting and wasting in TTS district compared to national and province ENT data

Prevalence of stunting



Prevalence of wasting



Source: *Risikesdas* from respective years (NIHRD, 2007, 2010, 2013)

35 The population of TTS was 440,470 with 110,070 households in 32 sub-districts in 2010 (Statistics Indonesia, 2010).

ADDRESSING LOCAL NEEDS

Preparations for PLB started in 2010, and the multisectoral partners comprising of WFP, Ministry of People Welfare, Ministry of Development and Planning, Ministry of Health, Ministry of Education, the Office of Special Envoy of MDGs, Unilever, DSM, GAIN, Mondelēz International Foundation, Indofood, and Garudafood, assessed the project location in 2011.

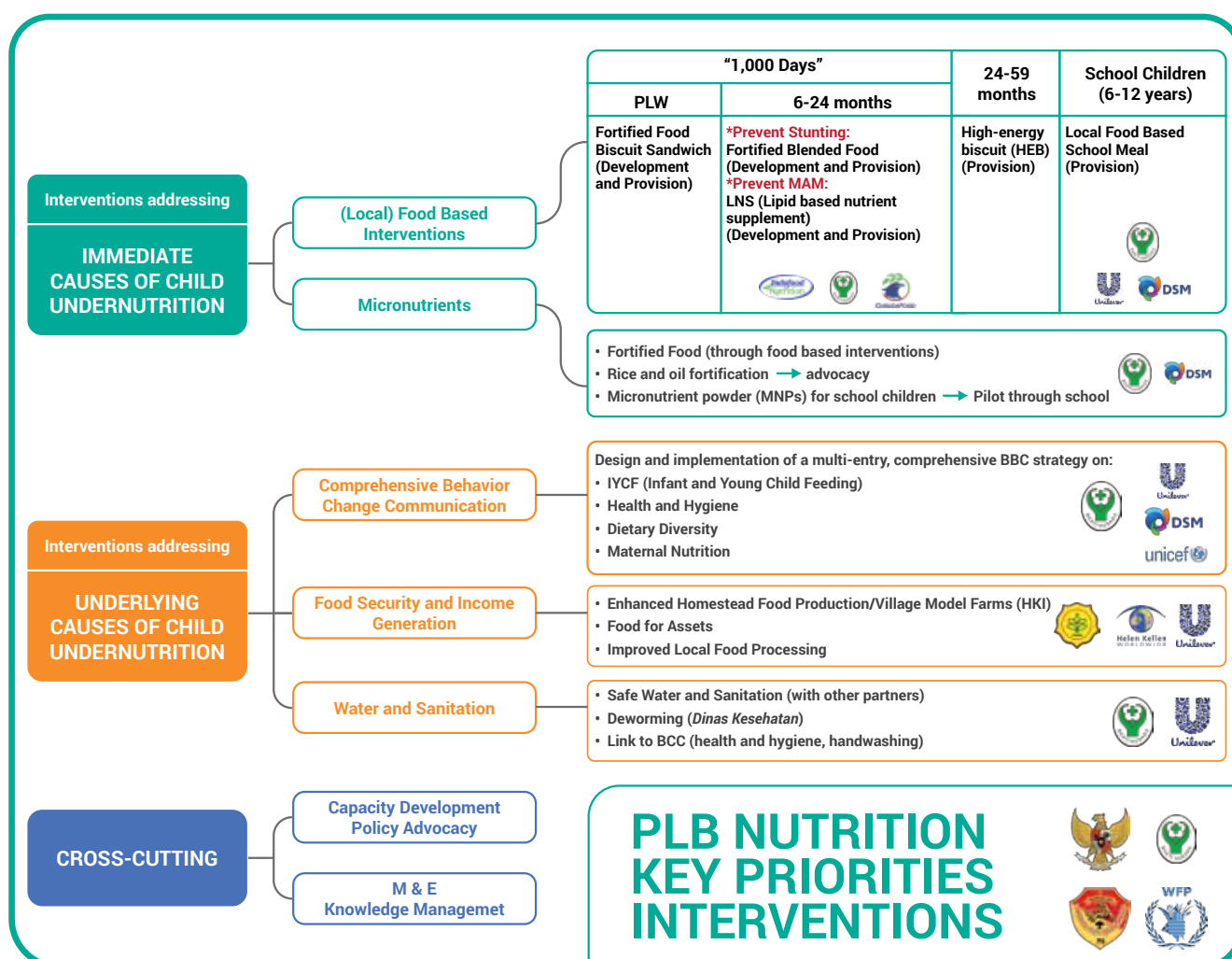
It became clear to them that TTS, and other districts in ENT, faced a serious food security issue. Food accessibility was poor, and the local purchasing power was low.

The partners knew that in order to improve child undernutrition in TTS, the interventions would have

to address the issue of food security, in addition to addressing the other major causes of child undernutrition.

Thus, local-food-based interventions and micronutrients supplementation became a major focus for the PLB. Conscient of the multisectoral determinants, the partnership also continued to address the direct and underlying causes of undernutrition through comprehensive behavior change communication (BCC), dietary diversity and income generation activities, as well as water and sanitation improvements for a clean environment. PLB also embarked on cross-cutting efforts such as policy and advocacy, and monitoring and evaluation at its project sites (see Figure 17 for more information).

Figure 17: Project Laser Beam's prototype to support the Government of Indonesia's response to both immediate and underlying causes of undernutrition



BRINGING A DIVERSE RANGE OF EXPERTISE TO IMPROVE LOCAL CONDITIONS

The partnership brought to the TTS, a diverse range of expertise; the whole is greater than the sum of its parts: while each partner utilized its strength to address local needs, the project benefited from collaboration and synergies.

For example, working closely with the Government of Indonesia, World Food Programme (WFP) carried out local food-based interventions by distributing high-energy fortified biscuits for pregnant and lactating women (PLW). WFP also worked with Indofood and DSM to distribute fortified blended complementary food for children aged 6-24 months through the *Posyandu*.³⁶ WFP reached 11,500 children aged 6-23 months and 6,000 PLW in 442 *Posyandu* in TTS. The program covered all the target beneficiaries in half of the district of TTS (17 out of 32 sub-districts).

Prolonged lean seasons are common in TTS, requiring a longer-term approach.

WFP further brought expertise locally by working with Garuda Food and DSM to develop and test a medium quantity lipid-based nutrients supplements (LNS) named *Kaziduta (Makanan Bergizi untuk Anak berusia Dua Tahun – nutritious food for children under two)* for the prevention of wasting during lean seasons. LNS are ready-to-use foods which provide a range of vitamins and minerals, as well as energy, protein, and essential fatty acids (EFA) for prevention of undernutrition.

In addition to the LNS, the partners also collaborated with the local governments, PKK and *Puskemas* to support *Posyandu* activities such as growth monitoring and promotion, vitamin A supplementation, deworming for children 1-5 years old, immunization and the provision of IFA tablets for pregnant women.

Mondelēz and Helen Keller improved food security and income generation locally by improving the farming and animal husbandry skills of women and households through RANTAI's Enhanced Homestead Food Production Project (see "Timor Tengah Selatan: Fostering the farming skills of households for a better diet").

WFP, Unilever and DSM collaborated to provide local-food-based school meals and behavior change communication on health and nutrition to school-going children in the district.

GAIN worked with *Yayasan Kegizian untuk Pengembangan Fortifikasi Pangan Indonesia* to fortify oil with vitamin A, an essential micronutrient.

The local government of TTS worked to improve access and utilization of safe water and family latrines.

Unilever and local non-government organizations (NGOs) complemented the local government's WASH facility upgrades by educating the target beneficiaries on proper hand-washing techniques and clean and healthy lifestyle.³⁷

WFP, DSM and Unilever collaborated closely with the Ministry of Health Indonesia to design a comprehensive BCC strategy, including BCC strategies to improve maternal nutrition, infant and young child feeding (IYCF), balanced diet and dietary diversity, and clean and healthy lifestyle. BCC materials were provided to health facilities, *Posyandu*, and public places. *Posyandu* kaders provided health and nutrition education during *Posyandu* sessions and home visits using the educational materials (Figure 18).

36 Pregnant and lactating women received 100 gr per day (or 3 kg per month) of fortified high energy biscuits during pregnancy and lactation in the first 6 months after birth, providing 400 Kcal, 8 gr protein, 10 gr fat, and 14 vitamins and minerals per day. All children (6-23 months old) in the intervention areas received three sachets of 20 gr complementary food per day (60 gr/day) per month. This complementary food provided 240 Kcal, 9.1 gr protein, 3.7 gr fat, and 14 vitamins and minerals per day.

37 Promoting hand washing is part of Unilever's global commitment, the Unilever Sustainability Living Plan, which aims to help more than a billion people take action to improve their health and wellbeing.

And they all coordinated so that all the interventions came together in the same communities, to ensure convergence of interventions. Having simultaneous access to the right information, essential health and nutrition services, access to a diverse diet and a clean environment all at the same time in the same place, drives stunting levels down.

The PLB also focused on developing the capacity of local health staff and *kaders*, especially on Infant and Young Child Feeding (IYCF) practices to improve maternal nutrition, breastfeeding and complementary feeding practices of mothers of children under two.

Using modules developed by the MoH and UNICEF, the IYCF training greatly helped the health staff and *kaders* to build their skills in inter-personal communication.

Strengthening the capacity of health staff and *kaders* was crucial to PLB's success. Training on IYCF counseling and anthropometric measurement were conducted so the health staff and *kaders* were able to provide better services and advice on nutrition, to monitor progress and report accurate data. Length/height boards were also provided to the *Posyandu*.

Figure 18: Examples of Project Laser Beam's behavior change communication materials



RESULTS

Several months after the program activities ended, a final evaluation was conducted by SEAMEO RECFON in December 2015 (SEAMEO-RECFON, 2016). The evaluation compared beneficiaries in the intervention areas to children in non-PLB intervention areas.

This evaluation found a lower (67.9%) prevalence of stunting among beneficiary children aged 18 – 35 months compared to those not in the program area (74.8%). On infant and young child nutrition knowledge attitudes and practices, the evaluation found that food and nutrition outcomes were better overall among beneficiaries of the MCN program of PLB. It is likely that these behaviors have changed for the long term, making sure the efforts are not lost after the program itself stops.

Infant and young child nutrition knowledge, attitudes and practices, were overall better among beneficiaries of the MCN program. The timely introduction of complementary foods was higher ($p < 0.001$) among beneficiaries (79.8% vs. 68.7%).

Food availability and food access were frequently reported to be challenging in this setting, but the beneficiary children in the MCN program area had significantly higher proportions of meals that met minimal meal frequency, minimal diet diversity and minimal acceptable diet ($p < 0.001$).

Food rations fortified with micronutrients were “highly appreciated”, “well-liked”, and “easy to consume.” Coverage was high but frequency was low; 86.4% of PLW received fortified high energy biscuits and 98.3% of children aged 6–23 months received fortified blend foods (MP-ASI) at least once.

Paulina, a mother of three children from Oelbubuk village, about 12 km from Soe, in Timur Tengah Selatan (TTS) district said her two children always looked forward to eating the MP-ASI fortified blended food, especially her 22 months old daughter Johana.

She herself also realized the importance of gaining new knowledge and learning on what and how to prepare a healthy diet for her children, herself and her entire family.



“MP-ASI SUN is good for Johana...thanks to PLB for supporting us with this nutritious food,” she said.

A higher proportion of MCN program beneficiaries possessed a growth monitoring card (KMS) or Maternal and Child Health books (*Buku KIA Pink*) than those not in the program ($p < 0.001$). More than 90% of MCN program caregivers visited a *Posyandu* in the previous 3 months.

Delivery of the food rations using the local *Posyandu* system contributed to high coverage and acceptability. However, 66.3% of caregivers, who received food rations, reported sharing them, due largely to food sharing practices, as well as high levels of household food insecurity. The fortified blended food for children was shared with siblings (52.7%) and the fortified biscuits for PLW were sometimes shared with other family members (13.6%). Program team members also felt pressure to give food rations to all children, who came to the *Posyandu*, not just the intended beneficiaries.

Despite the success, stunting levels continue to be very high, in both intervention and non-intervention areas. This reflects the scale of the challenges faced by families in this poor region and the many more efforts that are needed to overcome this issue.

One of the critical factors for success was to ensure good coverage of all of the program package over the entire first 1,000 days of life.

The project was also challenged by the weak capacity of the local health system. Adequate access to health care is an important driver of stunting reduction.

The extensive use of volunteers, limited budgets and lack of trained staff, especially nutritionists to provide guidance and support required were further challenges. Budget and capacity issues also disrupted the local manufacturing of LNS which led to the project drawing on more support from the private sector. This was not a sustainable solution. In some areas, transport was so challenging that local production was the only efficient manner to produce the LNS.

While the local government was very keen to take over the project, there were budget constraints which added another challenge. But every challenge has lessons that can be learned. The project drew on the resources of the Ministry of Health and other central government ministries and encouraged local firms to produce affordable fortified food to help prevent undernutrition in remote and the poor districts of TTS, a good example of a public-private partnership and corporate responsibility.

The Ministry of Health started distributing supplementary food (fortified high energy biscuits) for malnourished children under five and pregnant women in early 2017, following the end of the PLB (Kementerian Kesehatan RI, 2018).

PUBLIC-PRIVATE COLLABORATION CAN YIELD LASTING IMPROVEMENTS

WFP's strategy never intended to design large programs, but rather to work with the government to create prototypes which can generate lessons to be integrated into a broader government program.

Scaling up homestead food production to the whole district was identified as crucial. Local-food-based school meals (LFBSM) was replicated to other districts by the Ministry of Education with the name PROGAS (*Program Gizi Anak Sekolah*). GAIN supported a vitamin A fortified oil pilot in other provinces.

Indofood now sells the new and improved fortified complementary food MP-ASI at affordable prices all over Indonesia.

The project also highlighted the importance of affordable nutrition.

The Cost of Diet study had shown that more than 70% of the population could not afford the minimum cost of nutritious diets. The availability of affordable food was a problem in TTS (Baldi et al., 2013). Social protection for the poor was critical. Local companies have a critical role to play in ensuring the availability of affordable fortified nutritious food in the local market.

Coordination and engagement with local NGOs, PKK, academia, other UN agencies is also important. Scaling Up Nutrition (SUN) Networks have also been strengthened to provide support to the government and other stakeholders in TTS. The SUN Network actively supports the SUN movement and the government's efforts to reduce stunting through the National Strategy to Accelerate Stunting Prevention (StraNas Stunting).



"The collaboration between local government and WFP started before PLB. The PLB has improved weight, especially among the malnourished children and pregnant and lactating women. Attendance rates at Posyandus has improved. There is a positive change in the health and nutrition status of children and pregnant women. All the achievements are due to the involvement of various elements, including local NGOs, community and local government. We thank WFP for involving us directly in the implementation of the program," said Mayor of TTS Ir. Paul V. R. Mella.

Project Laser Beam has shown that public-private partnership can play a major role in reducing malnutrition and improving the well-being of the most vulnerable. Moreover, it provides crucial lessons learned for the Gol's StraNas Stunting.



WHERE FISHPONDS AND RICE PADDIES MEET



As light rain starts to fall, fish swim about a rice field in the fertile volcanic soil of Yogyakarta province, seemingly oblivious to the water ripples created by the rain and breeze.

Small fish, locally known as the *Nila* fish, measuring about 10 centimetres each, dart between the clumps of rice plants, made accessible by the spacing method used by the farmers to improve yield. At one end of the rice field, fish move freely between a deep pond and the plants, feeding on weeds and naturally occurring food organisms.

For the district of Sleman, farming both rice and fish has proven to be a winning formula in a drive to boost nutrition, health, and income.

Fish farming in rice paddies started as a way to boost local rice production. It revived an age-old method of boosting rice yields. The fish not only eat weeds and fertilize the rice crop. They provide an invaluable source of protein to local families or can be sold for cash at market.

Brilliant in its simplicity, rice-fish farming starts with existing rice paddies, where the lay out of the paddies is changed to allow more space and depth around the paddy for the fish. They grow bigger and their 'waste' provides

a natural fertilizer for the rice. The rice grows better, increasing the production and can be sold at higher prices because of its better quality and higher protein content.

Farming both rice and fish is good for the household, good for the environment and good for the planet.

The link between improved nutrition through improved diets and rice-fish farming is promising. Indonesia is exploring opportunities to tap into this innovative method of improving diets through the rice-fish farming program.

For now, there is limited information regarding the impact of rice-fish farming on improved nutrition.

However, qualitative information points towards improved availability and accessibility of fish in families and the community.



"Oh yes, one of our farmers' group members is responsible for selling the fish in the local market. Our families now can consume the fish easily too," explained one of the farmers in Sleman district, when asked about the impact of rice-fish farming on their diets.

REVIVING AN OLD TRADITION

Rice-fish farming has a long history in Asia. The exact origins of rice-fish farming is unclear, but archaeological and written evidence points to China more than 1,700 years ago (Halwart & Gupta (eds), 2014).

In Indonesia, rice-fish farming was believed to have started in the Ciamis Regency in West Java, in the mid-1800s (Ardiwinata, 1957). Over the years, changes in the land ownership system and governance led to a few methods of rice-fish farming being employed, typically the fallow-season crop (*Palawija*) and 'rice-fish system' (*Minapadi*). In the early days, *Palawija* was the preferred method of rice-fish farming, and was first practiced as a means to increase income during the field resting (fallow) period (Halwart & Gupta (eds), 2014). With the advent of modern technology, techniques and information-sharing, the preferred method of rice-fish farming in Indonesia of late is *Minapadi*, where the fish and rice are farmed simultaneously in the same field. In addition to fish, crustaceans such as prawns can also be farmed with the rice (known as *Ugadi*). However, by far the most popular livestock to be farmed with rice is fish.

Interest in rice-fish farming in Indonesia has waxed and waned over the years.

Now rice-fish farming is making a comeback thanks to the Ministry of Marine Affairs and Fisheries (MMAF), supportive local governments and assistance from development partners.

In 2015, the Food and Agriculture Organization of the United Nations (FAO) in Indonesia provided catalytic support for increasing the number of *Minapadi* in Indonesia. With an initial supporting fund of IDR 2 billion (estimated USD 149,254) in 2015 from the FAO, the MMAF piloted a new model of *Minapadi* farming in Yogyakarta Province (Sleman district), and West Sumatera Province.

The pilot proved to be a success. In the Sleman district, one of the pilot sites, the new model developed by the FAO and MMAF in partnership with the local marine and fisheries office of Yogyakarta Province and Sleman district, and military support stationed in Sleman district, demonstrated the strong feasibility of implementation and scale-up. The pilot sites provided a solid business case and a healthy profit margin.

More importantly, the model - and its proven profitability - garnered interest among groups of farmers and the Yogyakarta Provincial Government.



As a result, the Yogyakarta Governor committed to the development of at least 50 hectares of land in the sub-districts of Pakem and Minggir for rice-fish farming and rice-prawn farming.

The program was scaled up to 30 districts in 2018 and the Ministry of Marine Affairs and Fisheries (MMAF) is allocating budget to scale up in an additional 27 districts.

The resounding success of the *Minapadi* pilot convinced the Government of Indonesia of the feasibility of scaling-up the *Minapadi* model in selected districts in Indonesia. Between 2016 and 2018, the government allocated at least IDR 18 billion (approximately USD 1.3 million) of state budget (APBN) to scale-up *Minapadi* in at least 580 hectares throughout 30 districts in Indonesia. In 2019, the MMAF allocated IDR 12 million (approximately USD 849,337) to develop *Minapadi* in a total of 400 hectares in 27 districts (MMAF, 2019).

The new *Minapadi* model is distinguishable from traditional rice-fish farming by the row spacing of the rice plants, the design of the field, including fish trenches and a deep pond, and the formation of farmers' groups (Box 16).



Box 16: Design of the new *Minapadi* model

Termed *Minapadi Jajar Legowo*, the new *Minapadi* model utilizes a 2 to 1 or a 4 to 1 row spacing of the rice plant. In other words, the rice plants are placed in rows of 2 (or 4), spaced by one unplanted row, before being placed in rows of 2 (or 4) again (IAARD, 2016). The regulation of space between rice plants has been shown to result in higher rice yield: the plant volumes increase by 33% per hectare and rice productivity increase by 12-22% (IAARD, 2016). In addition, a study conducted in Indonesia indicated a higher protein content for rice produced using the *Minapadi* model compared to monoculture system – about 10% to 11% higher (Sudiarta et al., 2016).

The design of fish trenches and a deep pond also play a key part in increasing soil accessibility for the fish, which in turn facilitates nutrient uptake by rice when the fish releases nutrients from the soil. This occurs either by disturbing the soil-water interface or by making the soil more porous. Increased soil accessibility also allows the fish better access to weeds, which is recycled into nutrients when the fish graze on the weeds. Overall, fish contribute to mineral availability in the field, such as nitrogen and phosphorus, which are essential for rice plant growth and production (Halwart & Gupta (eds), 2014).

One other key feature of this *Minapadi* model is the construction of a deep pond, measuring 80cm in depth and taking up a maximum of 20% of field space. Although the deep pond utilizes space which could be used for rice planting, the deep pond plays an important role in rice-fish farming, including providing protection for the fish, increasing access to the rice field, facilitating the fish harvest, and containing fish during rice harvest. The loss of space due to the deep pond is off-set by the increased rice productivity.

FARMERS TROUBLESHOOT COMMON PROBLEMS

Another distinguishable feature of the new *Minapadi* model is the formation of rice-fish farmers' groups.

This is in fact, a key success factor of the renewed *Minapadi* program. By forming a rice-fish farmers' group, the farmers in the community were able to maximize available manpower to modify existing rice fields or build new ones to the required specifications, work together to troubleshoot common problems, capitalize on economies of scale for fish seed (the term for young fish), fish feed, equipment and other purchases, and help each other out during critical periods throughout the farming cycle. In Sleman district, in addition to the main secretariat of the farmers' group (which includes the head, secretary and treasurer), there are working clusters that are responsible for tasks such as irrigation, field and harvest security, marketing and program sustainability. The formation of rice-fish farmers' group also allows the MMAF and local marine and fisheries offices to channel assistance more effectively.

The MMAF *Minapadi* program is aimed at increasing the income of farmers through rice-fish farming, and increasing fish consumption among farmers and community. Since its inception, the MMAF and the local marine and fisheries offices have given strong backing to ensure the success of the new *Minapadi* program. The support includes technical assistance,

capacity building, networking, monitoring and evaluation, and supervision through the help of on-site extension officers.

Recognizing that the initial start-up cost and technical knowledge requirement are major hurdles for most farmers, the MMAF developed a government assistance scheme that makes it easier for groups of farmers to request assistance from the government (Figure 19).

In addition, the MMAF and FAO have joined forces with the local marine and fisheries district office to build demonstration farms for rice-fish farming at pilot sites. These demonstration farms assist the groups of farmers through the entire program cycle (Table 3) to give hands-on experience to the rice-fish farmers. To date, 685 hectares of demonstration farms, used by 96 farmers, have been developed. These include locations such as Sleman district in Yogyakarta Province, Tabanan district in Bali Province, and Sukoharjo district in Central Java.

The Ministry of Marine Affairs and Fisheries assistance program aims to increase the uptake of the *Minapadi* Program. The assistance includes proposal submission; identification, selection and verification of candidates; selection of beneficiary; pooled procurement process, and distribution of services, assistance and goods to the beneficiary.



Figure 19: Government assistance mechanism

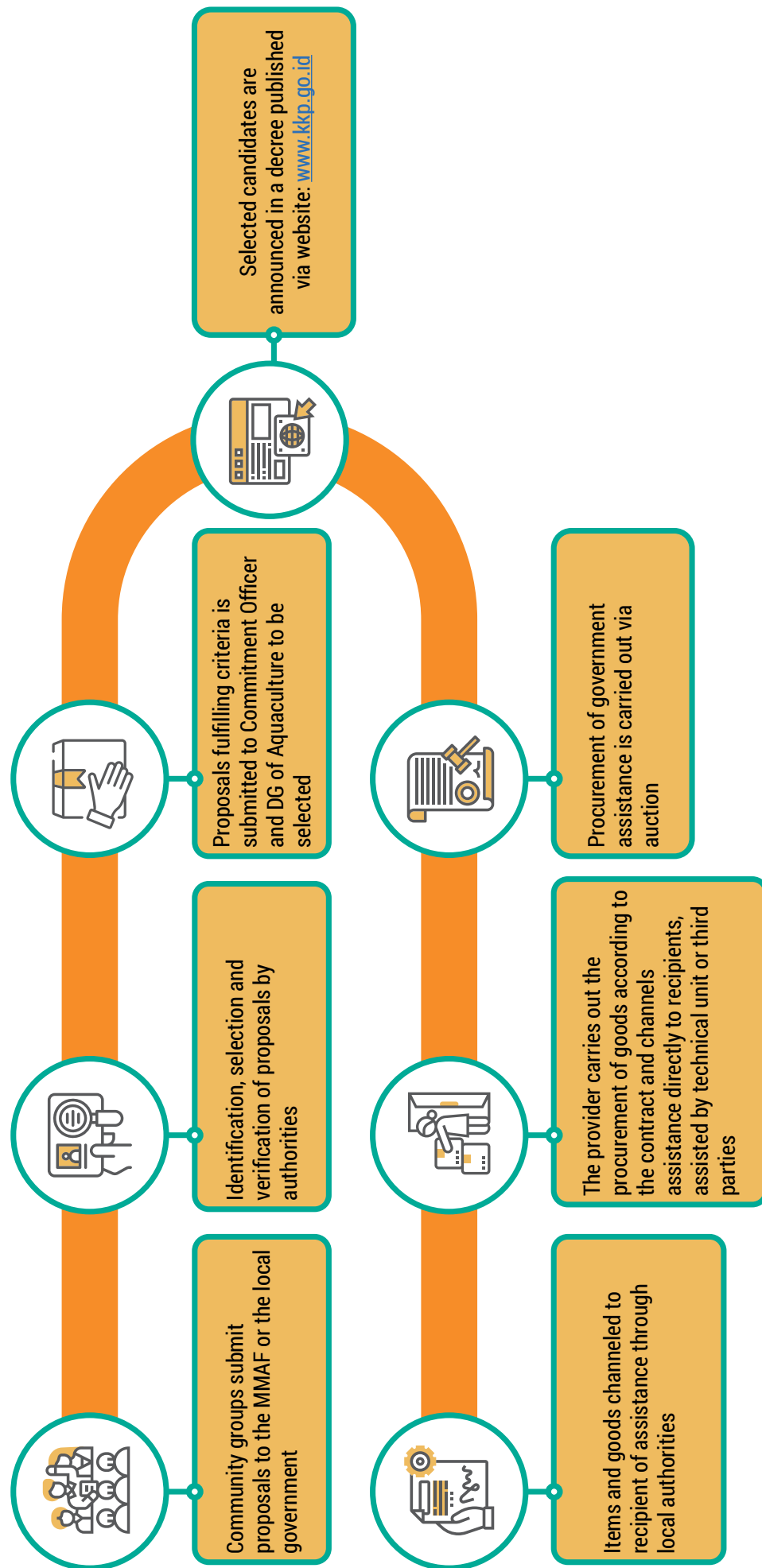


Table 3: Minapadi program cycle

Phases	Preparatory phase	Rice-fish farming phase	Post-harvest phase
Key activities	1. Location selection	1. Rice planting according to <i>jajar legowo</i> method	1. Monitoring and evaluation of rice-fish farming
	2. Selection of partner fish farmers (consisting of farmers without prior fish farming experience) and formation of working groups and clusters	2. Rice field fertilizing, typically conducted one to two times per harvest cycle (non-rice-fish farming field fertilization is two to three times per harvest cycle)	2. Product marketing
	3. Orientation, preparatory meetings and discussions	3. Wire installation, on periphery of field and on top of field for predator prevention	3. Financial management for sustainable program implementation
	4. Procurement of necessary equipment and materials including fish seed, fish stock and suitable pesticides	4. Fish seed stocking (typically 3-4 fish/m ² , on 7th - 10th day after rice planting)	
	5. Land preparation including deep pond and trenches construction, land fertilization and irrigation arrangements according to FAO technical guidelines	5. Harvesting (either fish followed by rice, or rice followed by fish)	

A BOOST TO FARMERS' INCOME

The new *Minapadi* program has increased farmers' incomes.

Results from many sites have demonstrated that rice-fish farming leads to improved rice productivity and better fertilizer efficiency.

The profit margin from rice sales is also higher due to a higher selling price - rice from rice-fish farming is marketed as healthier due to low pesticide use.

Even with higher overall cost from fish seed and feed procurement, rice-fish farmers still reported higher revenue compared to rice farmers due to the income generated from the sale of the fish. For example, in Widodomartani, Wedomartani and Bimomartani Ngemplak villages in Yogyakarta Province, the profit from rice-fish farming was estimated at IDR 43 million (approximately USD 3,200) in one cycle per hectare. In neighbouring villages, the profit was estimated at IDR 53 million (approximately USD 4,000) in one cycle per hectare or over 3 to 4 months (*Bidang Perikanan*, 2016).



CHANGING ATTITUDES

Despite continuous efforts to promote rice-fish farming in Indonesia, there are significant programmatic, behavioral and technical hurdles to overcome.

One major challenge that affects the success of the program is the difficulty in garnering adequate interest from potential rice-fish farmers. Although most farmers who tried rice-fish farming are convinced once they experienced the increase in income, it is still difficult for non-initiated farmers to depart from the traditional way of rice farming.

“It is a big challenge to overcome. Most rice farmers are not convinced that culturing fish along with rice will increase rice production, especially since a significant amount of land has to be allocated for fish farming. It is challenging to change this perception, as most (farmers) need to observe this before they can believe it”, said Dian Sukmawan, from the Directorate General for Aquaculture, MMAF.

The MMAF hopes to overcome this by setting up demonstration farms in selected spots, but has found the demonstration farms are not always successful in raising the interest of the farming community in rice-fish farming. One potential solution is to introduce *Minapadi* as a national program in the hopes that it will garner more sustainable support and interest.

The technical challenges of the *Minapadi* program are described in Box 17.

Box 17: Technical challenges are also common in the *Minapadi* program

Challenges include ensuring appropriate fish trenches specifications; proper selection of rice type and quality and use of suitable fertilizers; appropriate and quality use of fish seed, including uniformity of spreading seeds and protecting rice and fish from natural predators and pests. With the help of field extension officers, the MMAF provides guidance and capacity building for farmers to overcome these technical issues. The MMAF also play a key part in providing quality fish feed and helping set up a network of qualified suppliers of fish seed such as local technical implementing units for freshwater culture. In addition, the MMAF has been also working with the Ministry of Public Works and Housing to create a technical irrigation policy to provide guidance on irrigation and water management issues, and with the Ministry of Agriculture to provide potential farmland and to produce a better inputs for the *Minapadi*.

RICE-FISH FARMING'S NUTRITION POTENTIAL

Improving nutrition through increased consumption of fish among farmers, families and communities remain a significant challenge to overcome in the *Minapadi* program.

The common perception is that improved availability and accessibility of fish results in an increase in fish consumption in the household and community. However, this does not take into account that the main driver of rice-fish farming adoption is the opportunity to earn extra income. Market prices could dictate that all the marketable fish are sold, with none consumed by the farmer's household. Likewise, marketable fish could also be sold to cities where the demand - and thus, prices - of the fish is higher. This challenge is not unique to the *Minapadi* program and Indonesia (Halwart & Gupta (eds), 2014). Aware of this significant challenge, the MMAF is planning to assess the link between *Minapadi* and improved nutrition in the near future.

Recognizing the intricacies of improving fish consumption - and thus nutrition - is the first step in addressing this program challenge. The next is understanding that addressing nutrition through rice-fish farming will involve making the agriculture-aquaculture system more nutrition-sensitive (see Box 18 for definition of nutrition-sensitive agriculture and food systems).³⁸ This will enable the *Minapadi* program to contribute to improving nutrition and health more efficiently. Some ways to improve the nutrition-sensitivity of the *Minapadi* program include³⁹:

1. **Incorporating explicit nutrition objectives and indicators into the program design.** For example, incorporating indicators that assess fish consumption among households and communities.
2. **Assess the context at the local level, to design appropriate activities to address the types and causes of malnutrition.** For example, taking into consideration the local nutrition status when considering *Minapadi* demonstration sites or scale-up sites.
3. **Target the vulnerable and improve equity through participation, access to resources and decent employment.** For example, ensuring the government assistance mechanism for *Minapadi* is accessible to families in vulnerable populations, or 1,000 days households.
4. **Collaborate with other sectors and programs.** For example, collaborating with the health sector for nutrition promotion and education, and the education sector to introduce fish into school feeding programs.
5. **Empower women.** For example, by including women within the *Minapadi* program either in a farming role or other roles. Research has shown that empowering women has a positive impact on nutrition because women are most likely to direct resources and income towards food, education, health, and care.
6. **Improve processing, storage and preservation to retain nutritional value and food safety, to reduce seasonality and post-harvest losses, and to make healthy foods convenient to prepare.** For example, by ensuring the *Minapadi* program contributes to a nutrition-sensitive food value chain.
7. **Expand market access for vulnerable groups, particularly for marketing nutritious foods.** For example, by making sure 1,000 days households, school-going children and adolescent girls in the community have access to marketable fish.

³⁸ Nutrition-sensitive interventions are those that address the underlying determinants of fetal and child nutrition and development - food security; adequate care-giving resources at the maternal, household, and community levels; and access to health services and a safe and hygienic environment and incorporate specific nutrition goals and actions (Ruel & Alderman, 2013).

³⁹ Adapted from (FAO, 2017).

8. Incorporate nutrition promotion and education.

For example, through interventions that ensure increased fish and rice production and/or income translates into improved diets and improved nutrition status. One such intervention include interpersonal communication and cookery classes that empower the caregiver to prepare nutritious meals for the whole family with a special focus on small children, while addressing food-related taboos and beliefs that affect food choices and distribution in the household.

Currently, the MMAF *Minapadi* program is collaborating with the Ministry of Agriculture, Ministry of Public Works and Housing, donor partners and also local marine and fisheries departments.

It is important that the *Minapadi* program from MMAF collaborates with the Ministry of Agriculture, especially the Ministry of Agriculture's own rice-fish farming program.

The aim is to find more synergies including with other stakeholders such as the Ministry of Health and Ministry of Education, as well as their local counterparts. This would lead to boosting availability, access, and consumption of nutrient-dense and high-quality diets for 1,000 days households, school-going children, adolescents and vulnerable populations.

StraNas Stunting provides the perfect platform to accelerate coordinations such as these.

While the scaling-up of the MMAF's *Minapadi* program can be challenging, there is much potential in addressing the underlying determinants of child nutrition, as well as food security in Indonesia through the *Minapadi* program.



"Indonesia needs to continue to develop rice-fish farming to support national food security. Indonesia is one of the countries that has successfully developed rice-fish farming system nationally," said Dr. Ir. Slamet Soebjakto, the Director General of Aquaculture, MMAF. "Through this system, there are many benefits and positive values obtained,

Box 18: Definition of nutrition-sensitive agriculture and food systems

Nutrition-sensitive agriculture is an approach that seeks to ensure the production of a variety of affordable, nutritious, culturally appropriate and safe foods in adequate quantity and quality to meet the dietary requirements of populations in a sustainable manner. The recognition that addressing nutrition requires taking action at all stages of the food chain - from production, processing, retail to consumption - has led to a broader focus which encompasses the entire food system.

Source: (FAO, 2017)

such as providing food sources originated from rice and fish, where it can also produce organic rice that is free of pesticides. Meanwhile, from an economic perspective, this system can increase fish production that leads to the increase of farmers' income."

"The Directorate General of Aquaculture will continue to support rice-fish farming activity by allocating additional budget from the national budget (APBN) and work together with the FAO, Ministry of Agriculture, Ministry of Public Works and Public Housing, banks, etc to develop the program. It is expected that there will be more rice-fish farming activity in many areas in Indonesia in the future, therefore national nutritional needs as well as national food security can be ensured," he said.

One thing is for sure. For farmers and their families, the fish swimming in their rice paddies are welcome guests.

Not only do they help the rice crop to grow strong but their children too. And in the fight against chronic malnutrition, that means the *Minapadi* program is swimming in the right direction.



KEMENTERIAN
KESEHATAN
REPUBLIK
INDONESIA



PEDOMAN STRATEGI KOMUNIKASI

PERUBAHAN PERILAKU DALAM
PERCEPATAN PENCEGAHAN
STUNTING DI INDONESIA

2018

STRACOM: CHANGING BEHAVIORS THROUGH EFFECTIVE COMMUNICATION

President Joko Widodo, has elevated the issue of stunting reduction to a national priority that is central to Indonesia's human capital development.⁴⁰ The country developed an official package of "Integrated Nutrition Interventions (INI) for Stunting Prevention and Reduction" in late 2017. Then, President Widodo launched the National Strategy to Accelerate Stunting Prevention (StraNas Stunting) in 2018, with an initial focus on 100 priority districts with the highest stunting prevalence rates in the country.

STRACOM CONTRIBUTION TO THE NATIONAL STRATEGY FOR STUNTING PREVENTION

A general lack of awareness about stunting and its consequences, combined with scattered policies for stunting prevention, especially those focusing on Behavior Change Communication (BCC) and inter-personal communication (IPC), have been acknowledged as some of the main causes for stunting. Therefore, the National Behavior Change Communication Strategy (StraCom) for stunting prevention was introduced in October 2018 to address these factors. Led by the Ministry of Health and the Ministry of Communication and Information Technology at national level, StraCom builds upon Pillar 2 of StraNas's 5 Pillars for stunting prevention.

The objective of StraCom is to increase public awareness and change people's behavior related to stunting prevention. StraCom includes strategies for: a) campaigns and outreach at national and subnational level b) improving interpersonal communication skills for health care provider and *kaders* c) advocating decision makers to give stunting reduction a high priority and to adequately develop regulation to implement stunting prevention programs and behavior change communication strategy. StraCom is jointly coordinated by the Ministry of Health for behavior change communication, and the Ministry of Communication and Information for the national

campaign for stunting prevention. StraCom provides guidance to related stakeholders in developing local strategies to implement behavioral change communication to accelerate stunting prevention at the provincial, district, city and village levels. StraCom describes the target recipients and messages related to behavioral changes, and other technical elements, such as platforms for interpersonal communication, choice of communication channels, and policy advocacy activities.

STRACOM STRATEGIC PLANNING PROCESS

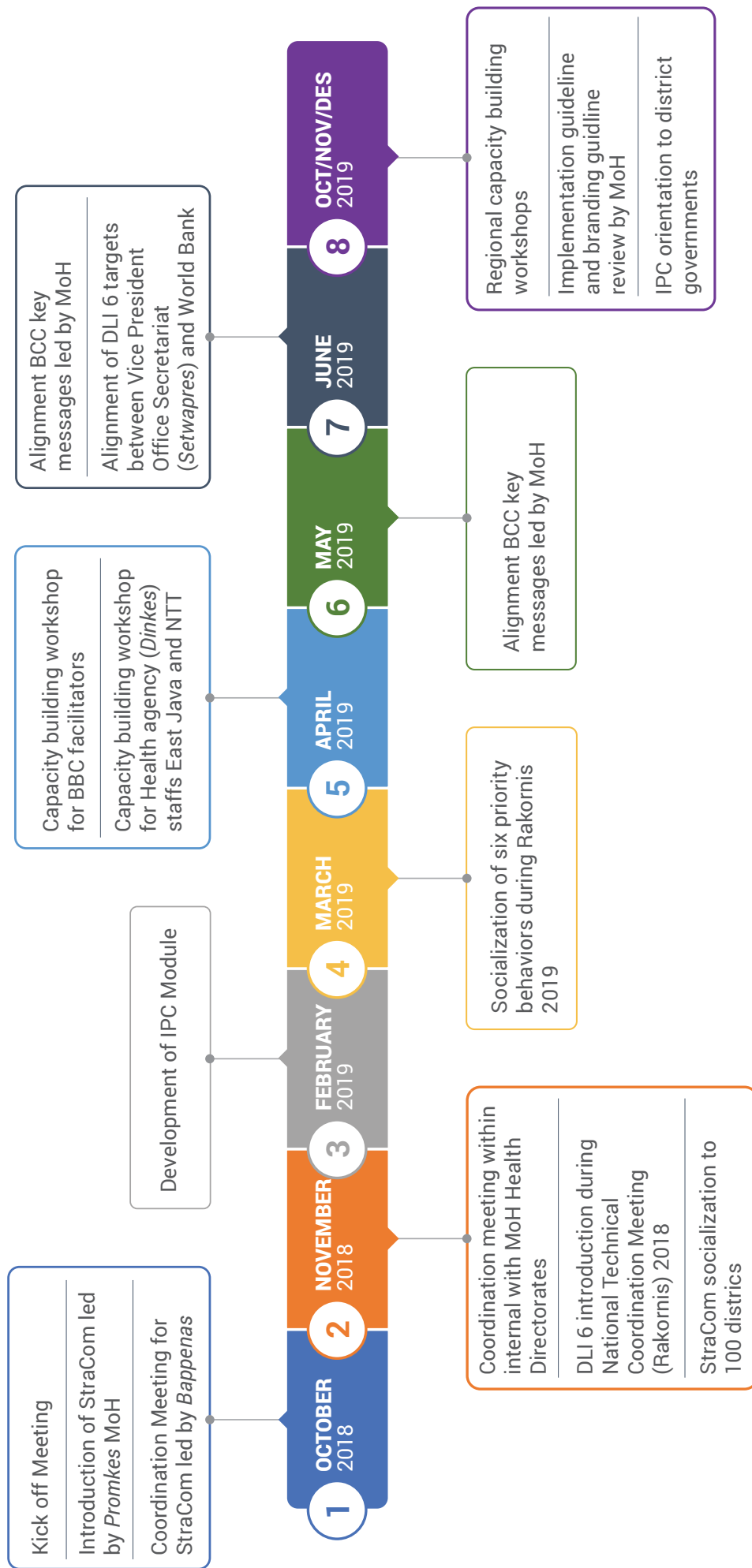
The strategic planning process starts with collaborative joint planning across sectors at the national level, followed by the provincial and district levels. The Ministry of Health, specifically the Health Promotion Directorate, is responsible for leading the coordination and planning of the Behavior Change Communication (BCC) strategy at both the national and subnational levels. Meanwhile, the Ministry of Communication and Information Technology, in collaboration with the MoH, is responsible for national mass campaign to improve awareness of stunting. The key steps for developing a behavior change communication strategy includes: a) analyzing the situation b) determining the target group c) defining key messages d) developing communication approach e) managing communication channels and f) designing communication materials.

MILESTONES

The development timeline of the StraCom is described in Figure 20. StraCom was introduced in October 2018, led by the Ministry of Health as the follow up from StraNas Stunting. In November 2018, StraCom was introduced to 100 priority districts during the National Technical Coordination Meeting (*Rakornis*) for Health. Those priority districts were expected to establish their localized regulation for StraCom implementation.

40 Plenary Meeting with House of Representative on August 16, 2016

Figure 20: StraCom development timeline



At the national level, an Inter-Personal Communication module was developed and six priority behaviors were selected as the main focus for stunting prevention. The behaviors include: 1) iron folic acid consumption for pregnant women 2) antenatal care visits 3) appropriate infant and young children feeding – early breastfeeding initiation, exclusive breastfeeding for 6 months, and appropriate complementary feeding starting at the age of 6 months 4) *Posyandu* attendance 5) proper hand washing and 6) use of healthy latrines.

A capacity building workshop for BCC facilitators at the national level was held in April 2019. The main objective of the workshop was to: 1) strengthen the capacity of Ministry of Health staff in the development of district StraCom and to enhance quality supportive supervision to the priority districts, and 2) collaboratively design BCC Implementation Guidelines for the district level BCC strategy. This national level workshop was followed by capacity building workshops for the District Health Office in East Java and East Nusa Tenggara led by the national BCC facilitators who were trained in April 2019. Important lessons were learnt from both the national and district workshops, such as: 1) building knowledge and capacity of the Ministry of Health team to understand BCC and its development process 2) building the knowledge and capacity of the district team to develop their local BCC strategy, 3) creating opportunities for potential collaboration with multi-stakeholder to work together on the local BCC strategy in greater detail, and 4) identifying key gaps in the national StraCom to be further strengthened and revised (i.e. key priority behaviors, behavior indicators, key messages, program/behavior indicators).

In May and June 2019, the Ministry of Health started the alignment process of BCC key messages along with the Vice President's Office, Ministry of Communication, Bappenas, and Ministry of Home Affairs. The final six key messages are undergoing pretesting. Three regional technical assistance workshops (West, Center and East) for developing district behavior change regulations were conducted in the last quarter of 2019. In general, the workshops increased awareness and knowledge about the importance of BCC and the need for strengthening BCC regulation and strategies, and increased

understanding that effective BCC implementation can only occur if it is carried out in a convergent manner across multi-stakeholders. To date, implementation guidelines for district StraCom implementation and campaign branding guideline have been drafted and are under review. This is being led by the Ministry of Health.

OPPORTUNITIES AND CHALLENGES

Opportunities include regional technical assistance through WhatsApps (WA) groups. WA groups have been established after the regional workshops (West, Center, and East). The purpose of the WA groups is to coordinate with districts on the development of regulations, district StraCom, and inter- personal communication activities. In addition, the WA groups were also used to share information, ideas, best practices, and lesson learnt. This WA group is managed by the Health Promotion Unit within the Ministry of Health.

Districts can work together in a multi-sectoral manner to develop their local BCC strategy and its implementation. However, key challenges in coordination among multiple stakeholders, as well as development and implementation of local BCC, remain.

There is a need for greater coherence across related stakeholders, both at national and subnational level. Currently, multi-sectoral coordination, both at national and sub-national levels, is still not being fully aligned. Continuous communication from the leading sector (MoH) still needs to be strengthened. While there have been efforts in facilitating coordination among key related stakeholders, some continue to operate in siloes.

Operationalizing the local district StraCom is the next big challenge. There is a need to improve national and subnational resources and capacity to develop sound and effective BCC intervention for stunting prevention, as well as communication skills (e.g., interpersonal communication, counseling), to ensure adequate BCC implementation at both national and subnational levels.

REDUCING STUNTING THROUGH *PROGRAM KELUARGA HARAPAN (PKH)*

In 2007, the Indonesian government-initiated *Program Keluarga Harapan* (PKH) or Family Hope Program, a conditional cash transfer (CCT) program, rolled out in seven provinces, before becoming a national program in 2013.

PKH initially targeted the poorest households, especially those with pregnant and lactating mothers, children below the age of 6 and school-aged children up to middle school. However, in 2014, the Indonesian government expanded the program to also include the non-poor including people with disability and the elderly, reaching as many as 10 million families in 2018.

To access benefits, beneficiaries are required to meet a range of health and education conditions, including attending pre- and postnatal check-ups, undergoing assisted delivery, bringing children to monitor their growths at the *Posyandu*, fully immunizing children, and complying with school enrollment and attendance requirements. Trained facilitators visit households to verify that they meet these conditions.

In 2009 the World Bank conducted an impact evaluation which may have captured some of PKH's incentivized behavior indicators in the short-term.

However, certain health outcomes, including stunting, might reflect effects over the long-term, which warrants further evaluation.

This motivated the National Team for the Acceleration of Poverty Reduction – *Tim Nasional Percepatan Penanggulangan Kemiskinan* (TNP2K) to conduct endline survey in 2013 to identify longer-term impact of the program where enumerators revisited all sub-districts and re-interviewed households in baseline sample, including split households and new household members. To examine those potential long-term and cumulative impacts of PKH on health, education, and human capital, a team of researchers from TNP2K and Abdul Latif Jameel Poverty Action Lab (J-PAL SEA) analyzed the 2013 data from nearly 14,000 households across 360 sub-districts in Indonesia. They compared the results with baseline data collected in 2007.

The baseline survey in 2007 was designed as a randomized evaluation at the sub-district level - assigning 360 sub-districts into 180 treated and 180 control areas - in which selection of eligible sub-districts was based on characteristics including prevalence of malnutrition, poverty rates, school drop-outs and availability of health and education facilities.

Researchers found that six years after PKH was introduced, it continued to promote health and educational investments in children.

Children of PKH beneficiaries experienced large reductions in stunting, by 9-11 percentage points (23-27% percent reduction in the probability of being stunted) relative to the comparison group, where 39% of the group reported cases of stunting. PKH also reduced severe stunting by roughly 10 percentage points (45%) relative to the comparison group, where 18% of households reported children with severe stunting. The effect was slightly larger among boys than girls. Notably, these impacts on stunting were not observed two years following the program, but only six years after implementation. Researchers suggested the effects on stunting were driven by prolonged attention to weight and nutrition during the early lifecycle of children whose parents received cash transfers. Households who received the PKH cash transfer also increased their utilization of a number of health services, more likely to have childbirths assisted by trained professionals and to fully immunize their children six years following the introduction of the program.

Mothers who received PKH were 13 to 17 percentage points (18 to 24%) more likely to undergo childbirth at a health clinic compared to the comparison group, who delivered in health facilities 73% of the time.

As of 2018, the PKH has reached more than 10 million households. But there is still room for improvement, such as ensuring adequate implementing organizations, adequate number and quality of PKH assistants and sufficient education and health facilities in PKH areas.

With such improvements PKH can go from strength to strength not only in tackling poverty, but also in accelerating stunting reduction efforts under StraNas Stunting.

THE LENGTH MAT: “TIKAR PERTUMBUHAN” AN EASY EDUCATION TOOL TO RAISE AWARENESS ABOUT STUNTING⁴¹

Ending malnutrition in all its forms is critical. Childhood stunting, a sign of undernutrition and poor early childhood development, has life-long consequences for individual health, productivity, and well-being. A nation with a high burden of child stunting sees repercussions in human capital and economic growth (Victora et al., 2008).

Measuring the weight and height of infants and children, especially before their second birthday, is particularly important to early detection of poor nutrition.

Regular assessment of a child's growth and development combined with behavior change counseling, known as growth monitoring and promotion (GMP), can help identify early growth faltering or cases of excess weight gain.

With adequately trained and supported health workers, GMP can help caregivers understand and address the underlying causes of unhealthy growth. There are, however, many challenges in conducting GMP, including:

1. Reliable and accurate measurement and recording of the measurements is often poor.
2. Measurements are not always used to counsel caregivers about growth and actions they can take to protect healthy growth or correct poor growth.
3. GMP data use for decision-making at all levels (from caregiver to national level) to prompt action is not always implemented (World Bank Group, 2019).

In 2017 Indonesia launched its National Strategy to Accelerate Stunting Prevention (StraNas Stunting).

The World Bank under its Human Capital Project is supporting the government in its efforts to enhance service delivery and accountability at every level of strategy implementation, striving to achieve the

convergence of critical multi-sectoral, evidence-based interventions known to reduce chronic growth and development problems in young children across Indonesia.

In January 2018, under a pilot project implemented by the *Generasi Sehat dan Cerdas (GSC)*/Human Capital Program, the *Tikar Pertumbuhan* or Child Length Mat was shared with and accepted by stakeholders at the Vice-President's office (*Sekretariat Wakil Presiden, Setwapres*), the National Development and Planning Agency (Bappenas), the Ministry of Health and the Ministry of Village as an inexpensive and easy to use tool in the community to help parents and community agents visualize linear growth. It aides in the identification of stunting for children under two so there could be better efforts on stunting prevention.

The Child Length Mat was developed by The Manoff Group to help parents and community workers visualize poor linear growth and stunting and trigger actions to prevent or correct it in children under two years of age.

The mat is poly-vinyl with a head board and has separate sides for boys and girls. Countries determine the periodicity of measurement, but commonly children are measured every three months, starting from three months of age. The mat clearly shows whether a child's length, while lying on the mat, is <-2 Standard Deviation (SD) of the current WHO standard for the child's age. Validation in Cambodia and Guatemala showed high sensitivity and specificity in identifying stunting compared to results when a height board was used. Workers found it easier to use (NOURISH PROJECT, 2016; Nutri-Salud Project, 2018). The Child Length Mat is being used in Bolivia, Cambodia, Guatemala, Indonesia, and Rwanda. In each country, the mat design, the training package, and the guidelines for family and community actions are tailored to the local context. Health services, communities, and families find positive benefits.

41 Summarized from a final report “Implementation of the Child Length Mat: Assessment and Recommendations” (Griffiths, 2019)

From January – April 2018, the Child Length Mat was developed, tested and reproduced along with a guide book and counseling cue cards for counseling for the Human Development Worker (HDW) under the *Generasi* (GSC) Pilot Program.

A community score card managed by the HDW added an area to summarize Length Mat outcomes for the community's children under 2 years of age to prompt collective action and accountability. Over 3,000 HDWs were trained to use the Length Mat and 725 mats were distributed to HDWs to trial in their villages during *Posyandu* (community integrated health service delivery posts) sessions.

In December 2018, the *Generasi* (GSC) Pilot Program ended. However, in most areas the HDWs continued working and using the Length Mat with financial support from the local government. This made early 2019 a good time to assess Length Mat implementation under the pilot.

From April to May 2019 the World Bank supported a review of Length Mat implementation to determine: 1) if use of the Length Mat should continue, and 2) if so, under what conditions. Given that the Length Mat is a community tool meant to be used as part of *Posyandu* activities, the general operations of the *Posyandu* also became a subject of this assessment.

The assessment was conducted in three districts (West Bandung, Central Lombok and Ogan Komering Ilir (OKI)) and, among these, in seven sub-districts and 14 villages. Of the 14 villages, 11 had been introduced to the Length Mat; three had not seen the mat. Thirteen villages had a HDW, nine from the *Generasi* program and four added by the local government since the end of *Generasi*. All 11 villages with a Length Mat had a HDW.

FINDINGS AND IMPLICATIONS

The assessment of the Length Mat pilot was eye-opening. It demonstrates the importance of taking a periodic, in-depth look at operations to catch policies or procedures that need realigning and to refine implementation. Listening to those implementing the program, plus direct observation and a detailed review and discussion of records is crucial to capturing an accurate assessment of operations. Of upmost importance for an assessment of this type is an understanding among all involved that problems or mistakes are viewed as inputs for learning and improving how the program functions. This can ensure learning and bring us closer to providing what is needed in different contexts for children to grow to their potential.

The evaluation found that the HDWs were able to use the Length Mat correctly to identify growth faltering in children under two.

However, coverage and use remain limited.

While most HDW used the Length Mat with consistency in a few *Posyandu*, there was no village in the assessment where the HDWs used the Length Mat in all *Posyandu* in a village. This could be attributed to the high number of *Posyandu*, limited number of available length mats (typically one length mat per village) and time constraints in taking the Length Mat to every *Posyandu* every month. Therefore, no HDW had used the mat with all village children (3-24 months) during the pilot. As a result, the assessment could not observe the ease and impact of having and presenting growth information quarterly to village leadership and the village generally. The full potential of the Length Mat to create heightened awareness of stunting and action to promote healthy child growth by parents, village leaders and kader has therefore yet to be demonstrated.

In addition, the length mat was not properly introduced to the health sector in each province or sub-district, leading to misunderstandings about its use.

As a result, some health officers/nutritionists advised *kader* and HDWs to stop using it. And, in most areas the Length Mat was not properly incorporated into *Posyandu* operations. Rather it was a side activity carried out by the HDWs with little involvement of the *kader* or the sub-district nutritionists. The HDWs who received formal training on the use of the Length Mat were supposed to train the *kader* so they could help the HDWs or use the Length Mat themselves during *Posyandu*, but this did not happen due to some opposition or poor support from the sub-district.

Posyandu operations overall, were below minimum quality standards, further hindering efforts to find and correct early growth faltering.

Counseling offered by the *kader* either was not done on a regular basis or was done superficially. Even if the sub-district nutritionist was present at *Posyandu*, they did not fill the counseling gap.

The new KMS (child growth card) is the bright spot in *Posyandu* operations as it reinforces and makes it easier for the *kader* to detect early growth faltering using adequate weight gain, although detection is not yet prompting actions. Child growth information, even adequate weight gain, is not yet being used at the *Posyandu* or community level for local problem solving or investment decisions.



RECOMMENDATIONS AND NEXT STEPS

The assessment recommended the following:

1. Continue to use the Length Mat as a community education tool to prompt family and community action to improve young child growth. However, the Length Mat should be introduced in a different operational context, through the Ministry of Health as a part of *Posyandu* operations with the support of the Ministry of Village. The Ministry of Health will support the revision of the guidelines for the Length Mat.
2. Agree on and define the operational integration of the Length Mat into *Posyandu* operations. Convene a meeting between the key actors who support *Posyandu* and those with experience with the Length Mat. At a minimum the following should be considered: one length mat per *Posyandu*, easy procurement of standard (quality) Length Mats using Village Funds (*Dana Desa*), integrating Length Mat and weight gain outcomes when counseling families, providing training and job-aids for HDWs, *Kader*, and health staff, etc.
3. Strengthen the link between convergence programming and growth outcomes:
 - Make stunting information visible for village decision-making and heightened accountability of village leaders and local health personnel. Build the HDW's confidence to lead a discussion about trends in stunting rates and needed action to ensure that every child is experiencing healthy growth.
 - Review the home visit protocol and ensure a strong link between the HDW programming and that of the *kader*, *Posyandu* and *Bidan* (village midwife) to bring needed support to families struggling with child feeding and general child care issues.

04

CHAPTER 4 INDONESIA IS MOVING FORWARD



Indonesia is moving forward! The world's largest archipelago, in all its diversity, has shown a unity of purpose in tackling the scourge of stunting. With each step it moves closer to successfully halving stunting rates in less than a decade.

The length and breadth of the country, a blend of local determination, regional multisectoral coordination and national leadership has paid off. From East Kalimantan, Central Java and East Java to Sulawesi, West Nusa Tenggara and East Nusa Tenggara, local heroes have played their part in this story of success.

From midwives and fish farmers to nutritionists and community leaders, local champions in the fight against stunting have translated a nation's aspirations into reality. These champions, from all walks of life and every corner of the country, took different approaches to tackle the same problem.

This book, however, is more than a story of standalone successes.

From better nutrition, sanitation, health and education, their endeavors have culminated in a picture of collective achievement. They present a bigger picture of best practices and lessons learned from nutrition programs in Indonesia. This book celebrates their achievements but also identifies some of the common characteristics which have contributed to results locally, regionally, and nationally:

■ **Commitment:** Indonesia has committed significant time, energy, and resources to boost health, education, and social protection, including the National Strategy to Accelerate Stunting Prevention (StraNas Stunting). As in other countries, such as Peru, political commitment to improving health and wellbeing of mothers and children in the first 1,000 days of life has been critical to success. Children who eat adequate nutritious food, have access to good healthcare, clean water, and sanitation, and are given proper care and early stimulation face much lower risk

of stunting and a higher chance of reaching their full potential. That in turn unlocks the potential of every community and the whole of the country.

■ **Collaboration:** The key to success in reducing rates of stunting is coordination and collaboration. Indonesia owes much of its success to a multisectoral approach. It is using an all-of-government and all-of-society approach to prevent stunting. With the help of 23 ministries, provincial governments, district and sub-district governments, academia, NGOs, development partners, and private sectors Indonesia is moving the whole nation forward, calling on everyone to work together everywhere to reduce rates of stunting.

■ **Diversity:** There are many and diverse ways to tackle stunting. This openness to diverse approaches holds the promise of moving a diverse country like Indonesia forward more quickly. It shows that small initiatives can make a big impact.

■ **Environment:** This book shows what a country can achieve when it has the confidence to empower local people to find local solutions to national problems. That means creating an enabling environment for new ideas and approaches to be tried, tested, and thrive. When cities and regions are given sufficient freedom, trust, and resources they can make an enormous contribution to achieving national strategic goals. Showing confidence in the ability of local people to find locally appropriate and effective solutions to tackle stunting is one of the key takeaways from this book. When an enabling environment - including local regulations, funding sources, adequate platforms and trained human resources for coordination, as well as convergence - is created, the districts are well placed to offer local solutions to tackle a nationwide challenge.

■ **Sustainability, Support & Scale:** Small initiatives can only have a big impact when they are supported. They must be supported to achieve sustainability and scale, including by the national government, development partners, academia, civil society organizations, local communities, and businesses. They must be part of an integrated and systemic approach to make a lasting difference. At the end of the day, scale matters, no matter how successful individual initiatives are locally.

This book is about local heroes, from midwives and healthcare workers to district and central government officials. But it is also the story of a nation. The largest economy in Southeast Asia, Indonesia – a diverse archipelago nation of more than 300 ethnic groups – has charted impressive economic growth since overcoming the Asian financial crisis of the late 1990s. Today, Indonesia is the world's fourth most populous nation, the world's 10th largest economy in terms of purchasing power parity, and a member of the G-20. Furthermore, Indonesia has made enormous

gains in poverty reduction, cutting the poverty rate by more than half since 1999, to 9.78% in 2020 (World Bank, 2021).

Prior to the COVID-19 crisis, Indonesia was able to maintain consistent economic growth, qualifying the country to reach upper middle income status between July 2020 to June 2021. Despite the challenges of COVID-19, Indonesia's commitment to driving down rates of stunting remains undiminished. In 2000 around 40% of children in Indonesia were stunted. By 2019 this had fallen to just over 27%. The goal now is to accelerate current reductions as also mandated in Presidential Decree No. 72/2021 on Acceleration of Stunting Reduction. Indonesia aims to reach all 514 districts in the country by 2022 through a convergent approach as part of a drive to tackle stunting in provinces, districts, and villages across Indonesia.

Indonesia is moving forward. With each step, it moves closer to reducing stunting rates to levels almost inconceivable a decade ago. Indonesia can do it!

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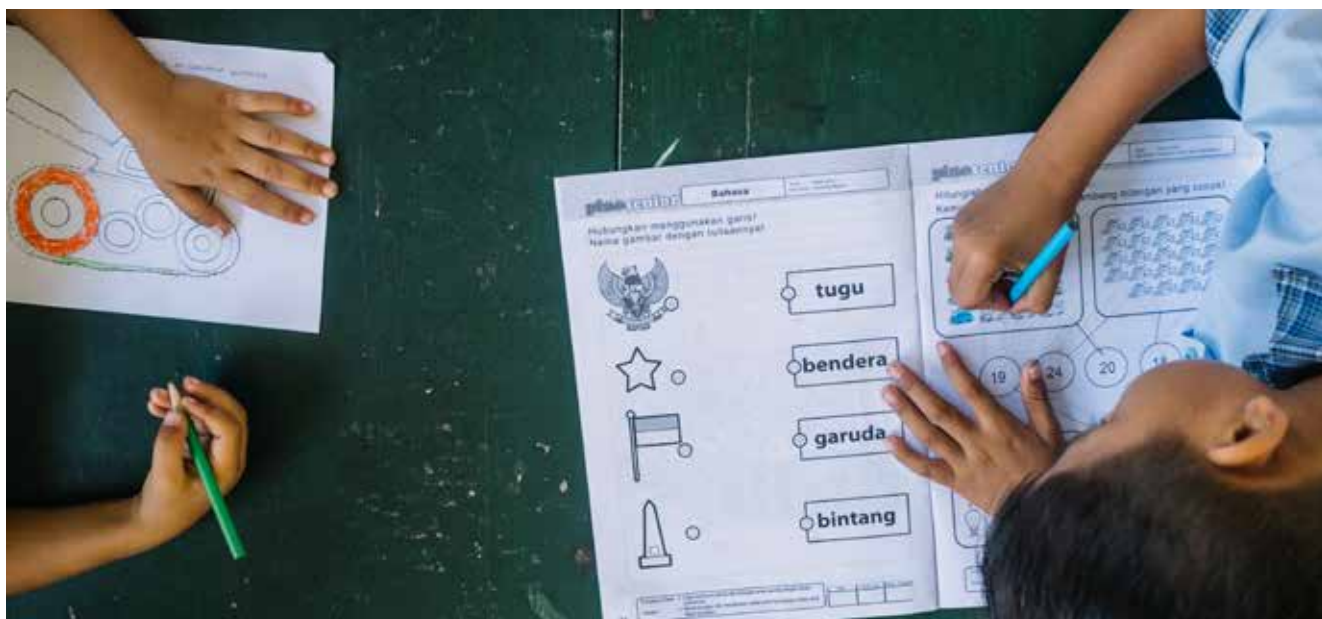
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ANNEX 1: STUNTING PROJECTIONS FOR INDONESIA



1. INTRODUCTION

Investment in nutrition in the early years is key to improving human capital. Nutrition investments particularly in the first 1,000 days of a person's life are cost-effective and promise high economic returns. Stunting is considered a good proxy for measuring cumulative nutritional deprivation that begins in the womb. Indonesia's under five stunting rate of 30.8% in 2018 is high relative to comparator countries in the region and by income as depicted in Figure 21. For its level of per capita income, we could expect the stunting rate to be about 15%, closer to Sri Lanka's 13%. This is also reflected in its Human Capital Index (HCI),⁴² a representation of a country's productivity potential. Indonesia's HCI score of 0.53 indicates that the productivity of Indonesia's future workforce will be just above 50% of what it could be given the right inputs. It falls below Vietnam's and Thailand's

HCI of 0.67 and 0.6, respectively (Alderman et al., 2017; Hoddinott et al., 2013; Horton et al., 2010; World Bank, 2018a, 2020b).

Stunting reduction is a high priority for the Government of Indonesia and motivates the launch of Indonesia's ambitious National Strategy to Accelerate Stunting Prevention (StraNas Stunting) with a multi-sectoral and coordinated approach at the national, regional and community level. This chapter explains the methodology adopted in modeling projections of stunting in Indonesia.⁴³ The details refer to the national level model and add reference to calculations at the district level.⁴⁴ The district-level model serves as a hypothetical case and the calculations use national level assumptions in the absence of district-level data.⁴⁵

42 HCI captures five indicators of health and education – probability of child survival till age 5, expected years of school, quality of learning (harmonized test scores and learning-adjusted years of school), proportion of under five not stunted, and adult survival rate.

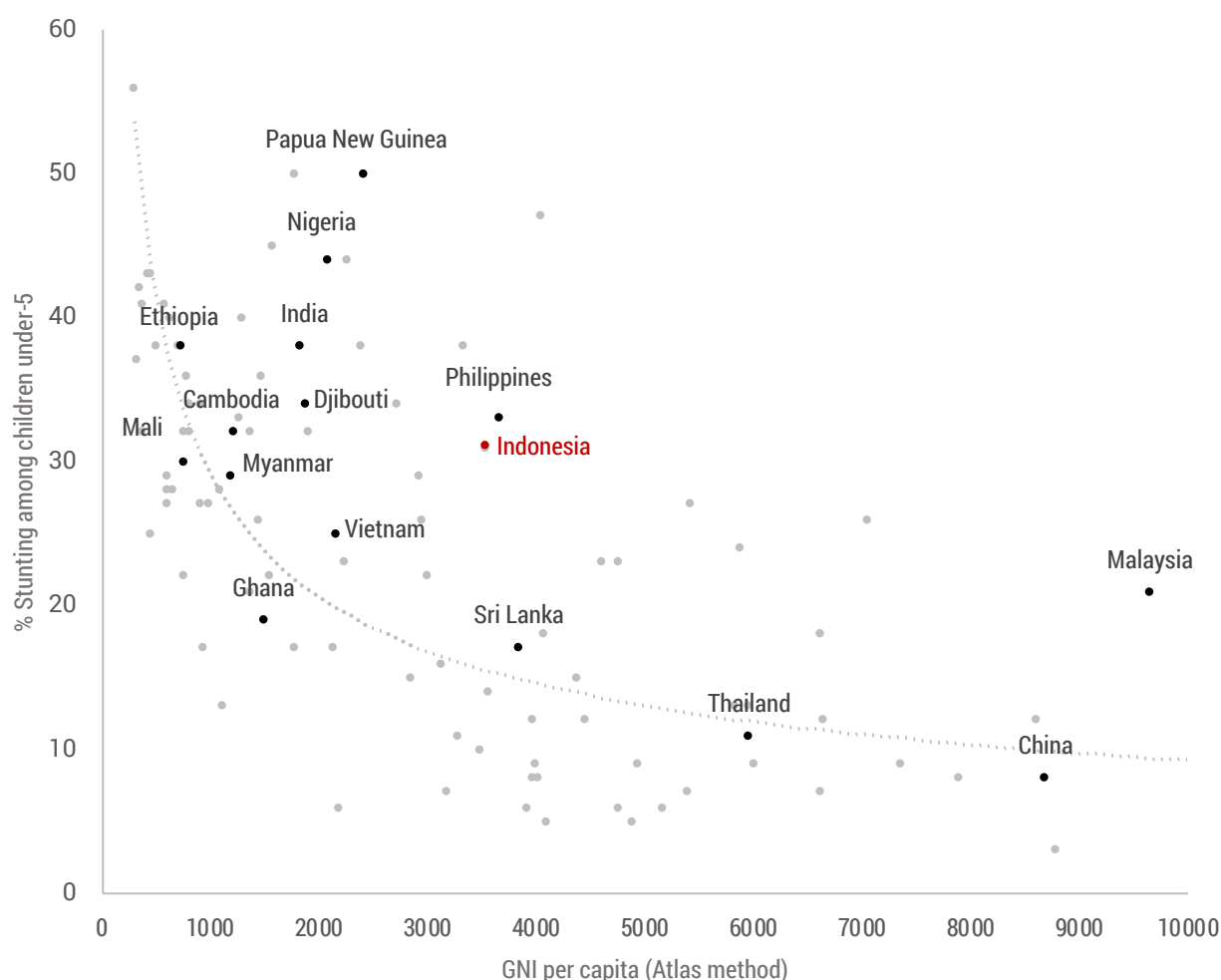
43 A version of the model incorporating the impact of COVID-19 has also been prepared and is currently being updated. This chapter has accompanying excel files for modelling national projections and an experimental template for district projections. For more information regarding the accompanying files and template, please contact the World Bank Office Jakarta.

44 The national level model was described in "Aiming High: Indonesia's Ambition to Reduce Stunting" (Rokx et al., 2018).

45 The district chosen for the example is Timor Tengah Selatan (TTS) in East Nusa Tenggara or Nusa Tenggara Timur (NTT) Province. The district has a stunting rate of 58.7% in the under fives in 2019 according to the most recent BPS Statistics published in 2020 (the data for under two stunting is not available) and a population of 465,477. Given its relatively large population, the sample of households with children under the age of two covered for TTS in the Riskesdas survey is sufficient to generate statistically reliable estimates.

Figure 21: Stunting rate in Indonesia relative to comparator countries

Stunting prevalence (%), latest year available vs GNI per capita (USD) 2017



Source: World Bank, 2020b; Based on World Development Indicators data for 2019; Indonesia value from Riskesdas 2018 (NIHRD, 2018).

2. TARGET AREAS AND SCENARIOS

The Government's strategy prioritized 100 districts with high stunting rates in its first phase in 2018. The model's base year is 2019 when the number of districts targeted were increased to 160 reaching the national coverage of 514 districts by 2022. Modeling projections of stunting form an important tool in tracking progress in achieving the goals set out.

The baseline stunting rate assumed is the 2019 under two national stunting rate of 26.6% (NIHRD, 2018, 2019).⁴⁶ The projected stunting estimates are calculated for the period 2020-2030⁴⁷ focusing on the first 1,000 days of a child's life under three scenarios: Business as Usual Baseline (BAU Baseline), National Strategy Realistic (StraNas Realistic) and National Strategy Optimistic (StraNas Optimistic).

⁴⁶ Riskesdas 2018 reports the under two stunting rate of 29.9% and an under five rate of 30.8%. SSGBI-SUSENAS 2019 reports the under five rate at 27.7%. Our team calculated the 2019 under two stunting rate of 26.6% by applying the ratio of the under five and under two rate to the under five rate.

⁴⁷ The projections consider interventions to take effect in the subsequent year. Thus, any interventions rolled out in 2019 will take effect in 2020.

The Baseline scenario projects stunting based on the trend in stunting decline from 2000 to 2018 of an average of 1.52% annually (see Table 4).⁴⁸ This decline is based on the assumption that the Government does not employ any additional interventions or step up its current coverage to reach a larger fraction of the population. The Realistic scenario assumes additional coverage of 5% for a set of interventions identified in Table 5.⁴⁹ The Optimistic scenario assumes the same set of interventions as the Realistic scenario with a 10% increase in coverage. A complete list of interventions is presented in Table 5.

3. INTERVENTIONS TO REDUCE STUNTING

The nutrition specific interventions cover one antenatal intervention – iron and folic acid (IFA) supplementation - focusing on pregnant mothers, and four interventions for the 0-2 year olds – exclusive breastfeeding (BF) counseling, zinc as adjunct therapy, vitamin A supplementation, and complementary feeding counseling. The nutrition sensitive interventions include conditional cash transfers, food assistance using the impact of having an egg a day on stunting, and behavioral changes in water and sanitation hygiene.

Table 4. Stunting decline calculations for Business as Usual Scenario

Under 5 stunting rate in 2000 ^a	42.4%
Under 5 stunting rate in 2007 ^b	36.8%
Under 5 stunting rate in 2013 ^b	37.2%
Under 5 stunting rate in 2018 ^b	30.8%
Number of years of decline	18
Percentage point decline from 2000-2018 = Stunting rate in 2018 - Stunting rate in 2000	11.6
Percentage change from 2000 to 2018 = Percentage point decline from 2000 to 2018/Stunting rate in 2000	27.4%
Per year stunting decline = Percentage change in stunting over 2000-2018/No. of years	1.52%

^aWorld Bank, 2019; ^bRiskesdas (NIHRD, 2007, 2013, 2018)

48 We use the time series for the national under five stunting rate rather than under two since the data for the latter was not available. However, the pattern of decline for the two age groups is expected to be the same over the period.

49 There was a 15% increase in IFA coverage over two years from 33% in 2016 (NIHRD, 2016) to 38.1% in 2018 (NIHRD, 2018). We take a conservative approach and assume an optimistic increase of 10% and a realistic increase of 5% for the different interventions.

Table 5. Interventions identified for the model and current coverage

Interventions	Impact identified in the literature	Current coverage
<i>Nutrition-specific</i>		
90+ IFA tablets, -9 to -6 months (pregnancy)	Decline in stunting due to reduction of low birthweight (Peña-Rosas et al., 2012)	38% (NIHRD, 2018)
Exclusive breastfeeding counseling, 0-6 months	Decline in stunting due to a decline in diarrhea incidence (Black et al., 2013; Lamberti et al., 2011)	4% (World Bank, 2018b)
Zinc as adjunct therapy during diarrhea episodes	Decline in stunting due to a decline in subsequent episodes of diarrhea (Baqui et al., 2002; Black et al., 2013)	37% (Statistics Indonesia et al., 2017)
Vitamin A supplementation	Decline in stunting due to a decline in diarrhea incidence (Bhutta et al., 2013; Black et al., 2013)	76% (NIHRD, 2016)
Complementary feeding education counseling	Decline in stunting as a direct effect of improved nutrition from complementary feeding practices (Lassi et al., 2013)	36% (World Bank, internal communication)
<i>Nutrition-sensitive</i>		
Conditional cash transfers	Decline in stunting indirectly due to better purchasing power (Cahyadi et al., 2018)	10% (Government of Indonesia; World Bank, internal communication)
Egg-a-day	Decline in stunting due to direct effects of micronutrients in eggs (Iannotti, Lutter, & Stewart, 2017; Ilman, 2019)	Poorest 25% of the population
Water, sanitation, and hygiene behavioral counseling	Decline in stunting due to decline in diarrhea incidence (Black et al., 2013; Waddington & Snilstveit, 2009)	Proxied by WASH infrastructure

We assume that nutrition-specific interventions are mutually exclusive. The antenatal interventions are independent of all the other interventions as the period of intervention is different. Exclusive breastfeeding impact is also independent of the other two impacts in the 0-2 year old period as the intervention is restricted to the 0 to 6-month period, different from zinc and vitamin A supplementation, which takes effect after the age of 6 months.

Since we consider the impact of zinc on diarrhea as an adjunct therapy in the treatment of diarrhea and not as a regular supplement, we do not incorporate the synergistic effect of zinc on vitamin A. Zinc deficiency can limit the bioavailability of vitamin A, thus zinc supplements are also given to aid in resolving vitamin A deficiencies (see, for example, (Rahman et al., 2002)). If zinc is used as a regular supplement, it would also invoke the synergistic

effect of zinc on vitamin A. Children receiving zinc are those who are treated for diarrhea, as an adjunct therapy and is not given as a regular supplement in Indonesia. It is worth noting that there is negligible zinc deficiency in Indonesia because the Indonesian soil is rich in zinc and likely also because wheat flour and some other foods are fortified with zinc (Diana et al., 2017).

The effect of WASH works through a different channel - water, sanitation, and hygiene, independent of the channel with which vitamin A and exclusive BF are delivered. However, we assume (incorporated in the final calculations in the model) that due to the simultaneous delivery of a number of interventions, there is a 'convergence' effect and a greater decline in stunting in areas with synchronized interventions (see, for example, (Levinson & Balarajan Y with Alessandra Marini for Peru, 2013; World Bank, 2017b)). The LIST and Optima models subtract the possible overlapping effects from their calculations (see Pearson et al., 2018; N. Walker et al., 2013; Winfrey et al., 2011). Thus, for example, they would subtract the possible effect of zinc and vitamin A together, which would be the products of decline in stunting times the coverage for zinc and vitamin A.⁵⁰ We don't subtract these for the reasons given above. Instead, we add the effect on a decline in stunting due to convergence, explained further below.

3.1 IRON AND FOLIC ACID (IFA) SUPPLEMENTATION

Intervention period: -9 to 0 months

Assumptions from literature: Supplementation by iron during pregnancy had been found to reduce low birthweight (LBW) by 19% and the results are similar for iron and folic acid supplementation (Bhutta et al., 2013; Peña-Rosas et al., 2012), the intervention

currently in effect in Indonesia.⁵¹ Following Black et al., 2013 we assume that 20% of all stunting is attributed to intra-uterine growth 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 IFA supplementation to this percentage, resulting in a 3.8% decline in stunting.

Effective coverage: The effective coverage of pregnant women consuming IFA, not just receiving it, is 38.1% (NIHRD, 2018). Thus, the discrepancy in effective coverage is 62%. Assuming there is a 5% increase in coverage in the first year, the increment would be $5\% \times 62\% = 3.1\%$. The discrepancy in coverage would now be $62\% - 3.1\% = 58.8\%$. In the next year, with new pregnancies, the target would be to reduce the discrepancy by another 5%, thus making the cumulative incremental coverage equal to: $3.1\% + 58.8\% \times 5\% = 6\%$, and so on till the year 2030, reaching a cumulative incremental coverage of 30.1%. The total coverage would thus be 38.1% (from before) plus 30.1% or approximately 68% under the realistic scenario. Assuming a 10% incremental increase under the optimistic scenario in effective coverage would result in total coverage of 84% by 2030. We cap the coverage at 70% for the realistic scenario and 85% for the optimistic scenario. These limits are not reached for either scenario.

Adjusting for additional coverage the decline in stunting for the incremental group will be 3.1% (calculated above) times the cumulative incremental coverage for each year. Thus, in the first year, for this incremental group of the target population the stunting decline will be the decline in stunting attributed to IFA supplementation of 3.8% times $3.1\% = 0.12\%$. Assuming the rest of the targeted population will receive the same benefits as before, we assume a decline in stunting at the same rate as

50 Winfrey et al., 2011 consider the total impact R as: $R = 1 - (1 - R_1) * (1 - R_2)$. R_1, R_2 are the impacts of individual interventions such as zinc or vitamin A. $1 - R_{1, \text{or } 2}$ is the probability of that event not occurring. 1 indicates the $P(\text{occurrence}) + P(\text{non-occurrence})$ of all events, the entire set. The product of the 'R' events not occurring is the simultaneous non-occurrence of everything else. 1 less this product is then the probability of the events R occurring. This happens to be same as $P(R_1) + P(R_2) - P(R_1 \text{ and } R_2)$ to avoid double counting, visualizing these as intersecting Venn diagrams. However, we do not need to subtract $P(R_1 \text{ and } R_2)$ if we consider the events mutually exclusive, as we have done in our model.

51 Note that antenatal micronutrient supplement (includes IFA and other micronutrients including vitamin A), on the other hand, reduces LBW between 11-13%. We could use this lower estimate instead of IFA but since the Indonesia program uses IFA, we have employed the estimate for IFA reported in the Cochrane review by Peña-Rosas et al., 2012.

the BAU scenario of 1.52% annually. We assume that only 20% of this decline is attributed to interventions at this stage of a child's life. Thus, the decline in stunting is $38\% \times 1.52\% \times 20\% = 0.12\%$ for the first year of intervention. Adding this to the decline attributed to incremental coverage, we get a total decline of $0.1\% + 0.1\% = 0.24\%$ for the realistic scenario in the first year of intervention. In the second year, it is 0.3% and reaches 1.3% by 2030 under the realistic and 2% under the optimistic scenario with increased coverage.⁵²

Scale: The model starts with interventions for pregnancies in 2019 with effects realized in 2020. The number of children born stunted in 2020 will be the product of the baseline stunting percentage and number of pregnancies.

At the national level assuming a baseline stunting percentage of 26.9% and given 1,636,259⁵³ targeted pregnancies in 2019, the number of children born stunted in the target group will be the product of these two terms, equal to 440,154. The Timor Tengah Selatan (TTS) stunting rate is 58.7% and there are 12,348 new pregnancies. We assume that everyone is targeted in the district. Thus, the number stunted pre-intervention will be 7,242. The percentage reduction in stunting estimated using assumptions from the literature (previous paragraph) is 0.2% for the realistic scenario, thus number of stunted cases averted are the number stunted pre-intervention times the reduction in stunting due to IFA supplementation. At the national level for the target group this is: $440,154 \times 0.2\%$ or 1,027 cases and for TTS district it is approximately 17 cases. The total stunted at the end of gestation is then calculated as the difference between number stunted pre-interventions less than number of stunted cases averted. For the target

group at the national level the estimate is $440,154 - 1,027 = 439,126$ and for TTS it is 7,255.

Next, we calculate the number of stunted in the non-target pregnant population at the national level.⁵⁴ This is the product of total non-targeted pregnancies times the baseline stunting rate or 973,840. Assuming 20% of BAU decline of 1.52%, the number of stunted cases averted will be: Total stunted in non-target pregnant population in 2018 \times BAU decline $\times 20\%$ or 2,960. Subtracting this number from the total stunted in the non-target group gives us total stunted post-intervention. Adding this number to the number stunted in targeted pregnant population we have number stunted at the end of the period, 1,412,967. In 2019, the total pregnancies nationally were 5,256,483. The percentage stunted is calculated as the total stunted at the end of the period/Total national pregnancies $1,581,351/5,291,143$ or 26.8% under the realistic scenario, indicating a 0.02 of a percentage point decline in stunting by the end of the first period due to antenatal IFA intervention.

For the following year, we follow the same process, assuming the baseline stunting of 26.9% to remain unchanged rather than feed the end of previous year stunting. We assume that new pregnancies in the following year will not have any positive externalities from interventions in the previous year. However, we relax this assumption in the mid-term by the year 2025 and use the stunting percentage from the end of the previous year. In 2030, the stunting is 25.1% implying a 1.8 percentage point decline in stunting relative to the baseline of 26.9% as a result of IFA supplementation. The corresponding decline for the optimistic scenario is 2.7 percentage points by 2030.

52 It may be argued that the exercise could be conducted using only the secular decline and assuming increase in coverage. This, however, will not be able to separate the effects of the different interventions and the impact and contribution of each intervention on the total along with the increase in coverage required for each intervention.

53 The number of pregnancies and number of children 0-2 year old targeted were calculated using the estimates of population growth rate from BPS.

54 For the district model, we assume that all pregnant women are covered, thus this part of the calculation does not apply in our district example. However, as mentioned, the model is experimental and hypothetical for the district level and actual values of coverage and scale of operation in terms of beneficiaries can be incorporated into the model as data becomes available.

3.2 EXCLUSIVE BREASTFEEDING⁵⁵ COUNSELING

Intervention period: 0 to 6 months

Assumptions from literature: In a recent meta analyses (Lamberti et al., 2011) find that infants who are partially breastfed,⁵⁶ relative to those who are exclusively breastfed (EBF), up to the age of 6 months are at an additional risk of diarrhea incidence expressed as a relative risk ratio (RR) of 1.68 or a 68% higher risk. Thus, a move from partial to exclusive breastfeeding would reduce diarrhea incidence by 68%. The RR for predominant relative to exclusive breastfeeding is lower at 1.28. We use the RR of 1.68 for our model, but discount it further by 50% for Indonesia, thus assuming a decline of 34% in the risk of diarrhea due to a move from partial to exclusive breastfeeding.

The next question then is how would the shift come about and what percentage of nursing/breastfeeding (BF) mothers can be expected to move to exclusive BF from partial BF? Sinha et al. (2015) review studies on antenatal or postnatal interventions to influence breastfeeding through different settings including health systems and services; home and family (one on one counseling through home visits or over the telephone) and the community (group counseling, meetings, social mobilization, mass media or social media). A combination of counseling methods has a higher impact on increasing exclusive BF rates. We, however, use the relative risk ratio of 1.2 (95% CI 1.03-1.39) in a community setting. In a combined home and community setting the impact is greater at 1.42 (95% CI 1.21-1.66). Thus, we can expect a 20% increase in exclusive BF rates due to community counseling. Currently, 41.7% of Indonesian infants under the age of 6 months are exclusively breastfed (NIHRD,

2013). Thus, 58.3% are not exclusively breastfed. We assume all of these are partially breastfed (although some might be predominantly breastfed as well). A 20% increase in exclusive BF would mean percentage exclusively BF post intervention is:

Percentage exclusively BF pre-intervention + (Percentage not exclusively BF*increase in rate of exclusive BF) = 41.7% + (58.3%*20%) = 53.4%.

Thus, the percentage point decline in those not exclusively BF is 53.4% less 41.7% or 12 percentage points or 12/41.7% = 28% change.

As noted earlier, the impact of breastfeeding on stunting works through its impact on reducing diarrhea incidence. Assuming a 34% decline in diarrhea incidence risk and applying it to the percentage increase in exclusive BF we get: 34%*28% = 9.5% decline in diarrhea incidence. The number of diarrhea episodes per 0-6 months old infant each year in Indonesia is estimated to be 2.6 (IHME, 2016; Statistics Indonesia et al., 2017)⁵⁷. Translating the diarrhea decline into number of episodes: Number of episode * Decline = 2.6*9.51% = 0.25. The average episodes after intervention is then 2.6 – 0.25 = 2.35 per child per year. The number of diarrhea episodes for TTS is 3.1 episodes.

Twenty five percent of stunting is attributable to previous five episodes of diarrhea (Black et al. 2013). Thus, stunting attributable to diarrhea pre-intervention at the national level would be 25%/5 * 2.6 = 13% and post-intervention it will attribute: 25%/5*2.35 = 11.8%. Thus, the percentage point decline in stunting due to diarrhea reduction from switch to exclusive breastfeeding is 13% - 11.8% = 1.2 percentage points.

55 Exclusive breastfeeding is the feeding of breast milk only and no other liquids or solids except medicines.

56 Partial breastfeeding is the consumption of breastmilk along with other liquids or solids/semi-solids including milk and non-milk products. Predominant breastfeeding is different from exclusive in that it includes water and other drinks but does not include solids/semi-solids or other liquids including milk other than breastmilk.

57 We use a lower incidence of diarrhea than that reported in IDHS 2012 of 3 episodes per child (11.6% children under 6 months get diarrhea in the last two weeks, thus in 52 weeks (one year) = 11.6%* 52/2 = 11.6%*26 = 3 episodes per child per year. The Global Burden of Disease reports 1.6 episodes per child per year under five years for Southeast Asia. We, thus, use an average of the two numbers, which is 2.6 episodes per child per year. Note that the lower estimate we use, the more conservative our assumptions are; there is that much less stunting to reduce and hence lower declines in stunting in the model.

Effective coverage: The current interpersonal counseling coverage in Indonesia is estimated at 4% (World Bank, 2018b). Thus, discrepancy in coverage is 96%. We assume a 5% increase every year under realistic and 10% under the optimistic scenario with a cap of 70% on total coverage in the former and 85% in the latter. Using these assumptions, the incremental coverage reaches 47% by 2030 in the realistic and 72% under the optimistic scenario. The decline in stunting is then calculated as the product of the effective coverage in that year times the percentage point decline. For the first year when the incremental coverage is 4.8% ($96\% \times 5\%$) the percentage point decline is $1.24\% \text{ points} \times 4.8\% = 0.06\%$ percentage points under the realistic scenario and 0.12% for the optimistic scenario.

3.3 ZINC AS ADJUNCT THERAPY FOR DIARRHEA

6-23 months

Assumptions from literature: The next intervention we consider is using zinc as adjunct therapy in the treatment of diarrhea, along with Oral Rehydration Salts (ORS). WHO and UNICEF (World Health Organization, 2004) recommend a 10-14 days zinc treatment for diarrhea in children under five on the grounds that zinc shortens diarrhea episodes, reduces its severity as well as the risk of future diarrhea. The importance of supplementing with zinc during and after an episode of diarrhea is also realized due to the loss of zinc during a diarrhea episode, which compromises a child's immunity further (Black et al., 2013; Larson et al., 2008). A randomized control trial in Bangladesh found that administering 20mg of zinc for 14 days for diarrhea treatment therapy resulted in a 15% reduction in diarrhea (Baqui et al., 2002). We use this lower estimate rather than the 19% reduction in prevalence mentioned by (Walker & Black, 2010) based on a meta analyses. Applying the 15% reduction to the number of episodes of diarrhea assumed at 2.6 per child per year (see above), we get 2.21 episodes post-intervention. Since a quarter of all stunting is attributable to previous five episodes of diarrhea, the decline in stunting from zinc treatment would be 2

percentage points (see details of calculations under exclusive breastfeeding).

Effective coverage: The diarrhea incidence among 6-23 months old children is estimated at 20%. Eighty percent of those who have diarrhea report to the health center. Of these, only 37.3% receive zinc for treatment (Statistics Indonesia et al., 2017). Thus, the current coverage in terms of the proportion of those receiving zinc is $20\% \times 80\% \times 36\% = 6.1\%$. To calculate the discrepancy in coverage, however, we refer to the proportion given zinc at the health center, which is currently 37.3%. The incremental coverage of zinc for treatment is then calculated as an increment to this percentage. Under the realistic scenario, we assume a 5% increase and for the optimistic scenario, a 10% rise capping coverage at 70% and 85% for the respective scenarios. The rest of the calculations to arrive at stunting decline incorporating coverage remain the same as in the other interventions. The stunting decline is 0.06 percentage point in the first year and reaches 0.6 in 2030 for the realistic scenario and 0.12 and 0.88 percentage points for the optimistic scenario.

3.4 VITAMIN A SUPPLEMENTATION

Intervention period: 6-23 months

Assumptions from literature: Vitamin A supplementation in the 6-23 months age group reduces diarrhea incidence by 15% (Bhutta et al., 2013). The current coverage of vitamin A in Indonesia is 76% (NIHRD, 2016). We assume a cap of 85% in coverage for the realistic scenario and 95% for the optimistic scenario for vitamin A. The coverage rates are high already and the incremental increase may need to target the marginalized. The calculations to arrive at stunting decline incorporating coverage increase are the same as in the exclusive breastfeeding and zinc intervention, resulting in a stunting decline of 0.02 percentage points in the first year and 0.18 by 2030 under the realistic scenario and 0.05 for the optimistic scenario in the first year and 0.34 percentage points in 2030.

As noted above, we consider the effects of these three nutrition-specific interventions affecting stunting through diarrhea incidence, exclusive breastfeeding counseling, zinc, and vitamin A, mutually exclusive and, thus, add the stunting effects adjusted for incremental coverage without subtracting interaction terms.⁵⁸

3.5 COMPLEMENTARY FEEDING EDUCATION

Intervention period: 6-23 months

Assumptions from literature: Complementary feeding (CF) education works towards helping caregivers feed nutritious foods beyond the period of exclusive breastfeeding, along with promoting breastfeeding. Since this period is critical to the growth of a child, getting good quality and quantity of food is essential in providing the high demand for nutrients at this stage. A pooled analysis of five studies from food secure and insecure populations finds that CF education brings about a significant decline in stunting with a relative risk ratio of 0.71 (95% CI: 0.60, 0.76) or a 29% decline in stunting, with caregivers incorporating recommended foods in feeding the children (Lassi et al., 2013). We use the lower bound of the confidence interval and, hence, 0.76 or a 24% stunting decline. Given pre-intervention stunting of 26.9%, this translates into a 6.5 percentage point decline. We assume further that only half of this is realized in the Indonesian context, to be conservative, thus a 3.2 percentage point decline. Currently 36% of the caregivers are receiving CF education (World Bank, 2018b). We assume once again that coverage increases by 5% each year under a realistic scenario and 10% for the optimistic scenario with a cap of 70% for realistic and 85% for the optimistic scenario. The realistic percentage point decline in stunting is 0.1 for the first year and one percentage point for the final year. The corresponding values for the optimistic scenario are 0.2 and 1.5 percentage points.

3.6 CONDITIONAL CASH TRANSFERS

0-2 years old households

Cahyadi et al. (2018) find that after six years of conditional cash transfers through the Government's Program *Keluarga Harapan* (PKH/Family Hope Program) to poor families, there is a significant decline in stunting between 9 and 11 percentage points. The program was initiated in 2007 and provides quarterly cash transfers to very poor households with children or pregnant and/or lactating women. A part of the transfer is 'conditional' on meeting specified health and education related decisions.

We assume a 10 percentage point reduction in stunting for the realistic pre-crisis model and an 11 percentage point reduction under the optimistic scenario rolled out to the poorest 40% of the households. The Government of Indonesia reports that a total of 9.2m people receive PKH from families with pregnant or lactating mothers or children in the age group of 0-2 years or 1,000-day families. This is 10% of the total population of the -9 to 24 months old age group. The stunting decline per year is calculated as the average of 10 percentage points over six years or 1.7 percentage points for the realistic scenario. Multiplying this with 10% coverage gives us a stunting decline of 0.17 percentage points for each year under the realistic scenario and using a 15% coverage, 0.18 of a percentage points for the optimistic scenario.

3.7 EGG-A-DAY THROUGH FOOD ASSISTANCE

6-12 months

Introducing eggs early in complementary feeding can contribute to improving nutrition and reducing stunting due to their rich micronutrient content, particularly choline, betaine, vitamin B12, and vitamin A. Although other sources of protein also provide

58 For those who are already covered and fall in the target population, we calculated the secular decline. We assumed that these three 0-2 year old interventions considered at this stage contribute to a fourth of the total secular decline (of 1.52%). Further, we assumed that each of these interventions contributes equally. Thus, the secular decline taking into account the coverage for each component is: $(25\% \times 1/3 \times 1.52\%) \times$ existing coverage for that intervention. This yields a very low percentage decline for each intervention and we did not include it in the final calculations. Not including these also presents a more conservative decline. We, however, keep the calculations made for IFA since it involves fewer assumptions on the distribution across the interventions for the 0-2 year old interventions.

key micronutrients, eggs are locally available, are affordable, and are easy to store and prepare. A randomized control trial of introducing an egg a day among children 6-9 months old in five rural parishes in Ecuador, with a baseline stunting rate of 38%, found a significant reduction in stunting by 47%. The trial was carefully monitored with weekly visits to the 83 households in the treatment group covered over a period of 6 months to distribute and ensure egg intake (Iannotti et al., 2014; Iannotti, Lutter, & Stewart, 2017; Iannotti, Lutter, & Waters, 2017).

Indonesia's Non-Cash Food Subsidy (*Bantuan Pangan Non-Tunai* or BPNT) program provides a food voucher of IDR 110,000 to the poorest 25% families accounting for about 15% of their monthly income. The assistance is provided with the aim of encouraging the purchase of nutritious foods particularly rice and eggs. Other nutritious food groups including vegetable, legumes, and fruits were added later to the program in 2020. The program is also referred to as BNPT *Sembako* (*Sembilan Bahan Pokok*) referring to a bundle of nine primary commodities: rice, corn, wheat, soya bean, meat, milk, sugar, cooking oil (coconut oil) and iodized-salt. (Ilman, 2019; Mu'minah et al., 2012).

A study conducted in Sumba Island, East Nusa Tenggara finds an on average household consumption of 12.43 eggs per capita per month. The introduction of the BPNT/*Sembako* increases the consumption by 7.5 eggs per person per month or 0.25 eggs per person per day (Ilman, 2019). We assume this increase for the realistic scenario and an additional 15% for the optimistic scenario. Since the program focuses on the poorest 25%, we assume that the increase is applicable only for this fraction of the population and will be $0.25 \times 25\% = 0.06$ per person per day for the realistic and 0.07 for the optimistic scenario. We apply a discounted decline in stunting rate of 13.7%⁵⁹ instead of the 47% in the Ecuador study and apply it to the fractional increase in egg

consumption calculated for this model and get a stunting decline of $0.06\% \times 47\% = 0.9$ percentage of a point for the realistic and one percentage point for the optimistic scenario.⁶⁰

3.8 WATER, SANITATION, AND HYGIENE (WASH) BEHAVIORAL COUNSELING

6-24 months

A review of impact evaluations covering 35 low- and middle-income countries finds a 32% reduction in diarrhea morbidity due to water, sanitation, and hygiene behavioral interventions (Waddington & Snilstveit, 2009). In our model, we assume that decline due to behavioral change is 50% of the stated decline under a realistic scenario and 75% under the optimistic scenario, thus a 16% and 24% decline in diarrhea morbidity under the two scenarios. The impact would be seen in terms of a reduction in the number of diarrhea episodes per child per year. However, we assume that the decline will only come about where there is 'WASH' infrastructure. Currently, 74% of Indonesian children in the 0-2 years age group have access to improved drinking water, 68% have access to improved sanitation and 71% are open defecation free (SUSENAS (2017) and NIHRD (2013) in World Bank, 2018b)). Thus, we calculate the 'average' of these as the access to WASH infrastructure, which is 71%. The decline in diarrhea is discounted by this percentage. For the realistic scenario it will be $16\% \times 71\% = 11.4\%$ and for the optimistic scenario, $24\% \times 71\% = 17\%$. Using these declines, we arrive at the number of diarrhea episodes post-intervention and calculate post-intervention stunting decline as for vitamin A, Zinc, and EBF interventions. The percentage point decline is 1.5 for realistic and 2.2 for the optimistic scenario throughout the period since we do not make any assumptions on changes in coverage for the nutrition-sensitive interventions.

59 The Ecuador study baseline stunting rate was 38% whereas the baseline stunting rate in Indonesia at 26.9% is 29% lower. We assume a proportionately lower decline in stunting for Indonesia or $26.9\% \times 47\% = 13.7\%$. Note that for the district model where we use Timur Tengah Selatan as an example, the baseline stunting rate of 59% is much higher than that of Ecuador. We, therefore, do not apply the reduction equivalent to the percentage difference in the baseline stunting rates and instead assume half the stunting decline of the Ecuador study following a conservative approach since the Ecuador study was carefully controlled for egg intake among participants.

60 Percentage point reduction in stunting: [Baseline stunting rate] – [Post intervention stunting rate] where Post intervention stunting rate = [Baseline stunting rate – Percentage decline in stunting].

The final decline in stunting due to the entire set of 0-2 years old nutrition-specific (four interventions – EBF, zinc, vitamin A, CF) and nutrition-sensitive (CCTs, Egg-a-Day, WASH) interventions is the sum total of all interventions. In the first year, the decline is 2.7 percentage points for realistic and 3.9 for optimistic and in 2030, 4.7 and 6.9, respectively.

Scale: Number of 0-2 years old targeted in 2019 (results materialize in 2020) is 4,392,482. Applying the baseline stunting percentage of 26.6% the number stunted pre-intervention is 1,181,578. With a 2.8 percentage point reduction calculated for the realistic scenario and baseline stunting of 26.9%, stunting post intervention will be 24.2% or a 10.2% decline. Thus, number of stunted cases averted in the target population is: Number stunted pre-intervention * Stunting decline = $1,181,578 \times 10.2\% = 120,696$. The number of stunted post-intervention is then number stunted pre-intervention less the number stunted cases averted or 1,060,882. The total 0-2 years old population in 2019 is 14,110,850. The total stunted, using the baseline stunting rate would be 3,795,819. Of the total, 9,718,368 are not targeted. For this part of the 0-2 years old population, the number of stunted using baseline stunting rate is 2,614,241 and stunting will decline at the BAU rate. We assume that 80% of the decline is from interventions at this stage (20% came from antenatal IFA intervention) and is calculated as Number stunted * BAU stunting rate * 80% = 31,787. The number of stunted in the non-target group at the end of the year is $2,614,241 - 31,787 = 2,582,453$. Thus, total stunted, target and non-target = $2,582,453 + 1,060,882 = 3,643,335$. Dividing this by the total number of children 0-2 gives us an end of year stunting rate for the entire 0-2 years old population of 25.5%. For the calculations in the next year, we arrive at a weighted average for the stunting rate explained now.

As new districts are added in subsequent years, we apply the baseline stunting percentage of 26.9% to the fraction of new districts. Of the repeated districts, the 1-2 years olds in the current year would have received the 0-1 year old interventions in the previous year. Also, the 0-1 year olds received antenatal interventions in the previous period. Thus, we assume that of the repeated districts those who received -9 to 0 month interventions the previous year and are now 0-1 year old will have externalities and these children would have acquired the new stunting rate. Therefore, we use the new stunting rate but only a third of it since this age group is about a third of the target population.⁶¹ We could assume that the 0-1 year old also acquire the new stunting rate as they have received one year of the program interventions. But we use a conservative approach and assume that this group still has baseline stunting. Thus, the adjusted stunting percentage is:

$$\begin{aligned} & (\text{Baseline stunting \%} * \% \text{ districts not repeated}) + \\ & (\text{Previous year stunting \%} * \% \text{ districts repeated} * 1/3 \text{ for } -9 \text{ to } 0 \text{ month olds who are now } 0-1 \text{ year old}) + \\ & (\text{Baseline stunting \%} * \% \text{ districts repeated} * 2/3) \end{aligned}$$

The number of stunted pre-interventions calculated from the second year until the end of the period will then be: Number targeted in that year * Adjusted stunting percentage.

The total percentage point reduction in stunting from 0-2 years old interventions obtained in the first year is 2.8%. From the second year onwards, we assume a lower reduction in stunting than the one arrived at. Some of the districts are repeated and in these the 1-2 years olds have already received 1 year of intervention. Thus, we reduce impact of this group by half with the adjusted stunting reduction given by: (Stunting reduction * Percentage districts not targeted before) + (Stunting reduction * Percentage repeated districts * 1/2)

61 A third because we can think of three groups receiving interventions: -9-0 months, 0-1 year, and 1-2 years.

The stunting percentage post intervention in the target group is the difference in the adjusted stunting percentage and the percentage point reduction in stunting due to 0-2 years old interventions.

The corresponding percentage decline in stunting is the ratio of the percentage point decline in stunting and the adjusted stunting percentage. Thus, the number of stunted averted in the target group is the product of the number of stunted pre-interventions in target group and the percentage decline in stunting. We then arrive at the number of stunted post-intervention in the target population as the difference between number stunted pre-intervention and the number of stunted cases averted.

We now calculate the stunting decline for those not in the target group using the BAU stunting decline percentage. Total number of stunted children in the non-target 0-2 years old population = Number of children in non-target group * Baseline stunting percentage. The number of stunted cases averted is then calculated as the product of the number stunted * Decline in stunting, calculated as the secular rate of decline in stunting times 80% (since we assume that 80% of the decline comes at the 0-2 years stage and the remaining from antenatal interventions). Thus, the total stunted in non-target 0-2 years olds at the end of the year will be the Number stunted at the beginning of the year less the number of stunted cases averted. Adding this to total stunted in the target population gives us the total stunted 0-2 years old population in that year. Dividing this by the total number of children 0-2 years in that year gives the end of the year stunting percentage. For the following year we then calculate the adjusted stunting percentage as explained above, repeating till the year 2030.

In our final step, we incorporate further decline in stunting due to the synergistic effect of the different interventions as explained now.

4. ADDITIONAL STUNTING DECLINE DUE TO CONVERGENCE

A recent World Bank report (World Bank, 2017b) investigated the difference in stunting rates for households with access to at least one versus two, three or four CHEF (care, health, environment and food security) variables. Adequate care can constitute such measures as breastfeeding practices, mother's knowledge of handwashing practices, smoking behavior in the household, and complementary feeding practices. Adequate health captures access and use of health services in antenatal until the post-natal period and would include IFA supplementation for pregnant mothers and vitamin A supplementation for children as well as immunizations. Under environment the study uses measures of improved sanitation, safely managed drinking water, and community sanitation.

In 2013, 23% of the households were found to be without access to any of the CHEF variables. The difference in stunting between households that had access to at least one CHEF variable versus those that had none was 5.2 percentage points. Likewise, those with access to two versus none had 8.9 percentage points lower stunting and as much as 13.4 percentage points with access to three or more. Of the 23% households without any access, we assume an increase of 15% each year in access to two CHEF variables under a realistic scenario and three under the optimistic scenario.

Assuming a 15% increase in access to CHEF variables among the 23% households that had no access results in covering nearly 5% of the households previously without any access ($15\% \times 23\% = 3.45\%$). The discrepancy in access is now: $23\% - 3.5\% = 19.5\%$. In the second year the discrepancy is reduced to: $19.5\% - (19.5\% \times 15\%) = 16.6\%$. The incremental

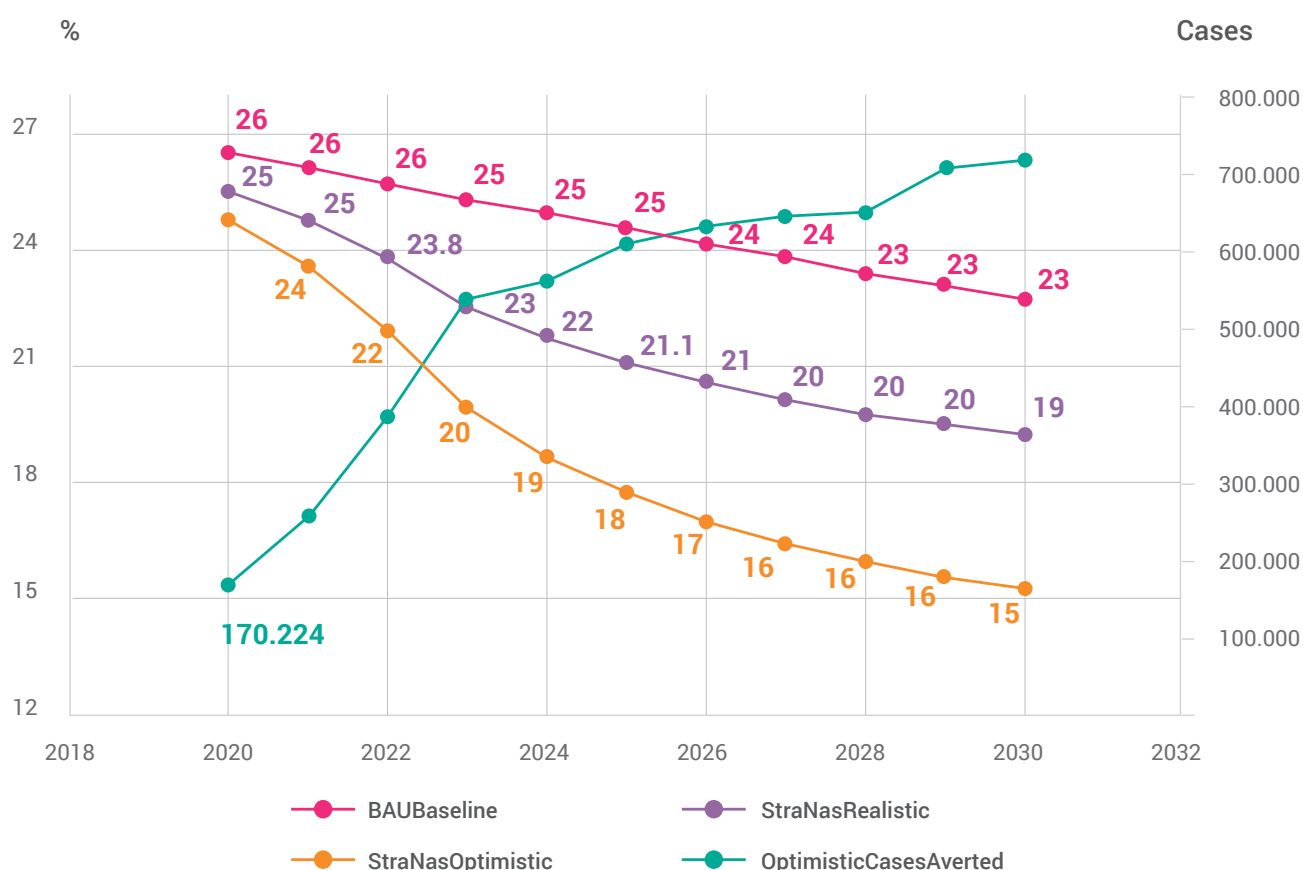
coverage of households without access in the first year was 3.5%. For the next year the increment in households with access to CHEF will be calculated on the remaining percentage without access that is. Thus, in the second year, the cumulative percentage of households with access to CHEF is: $3.5\% + (19.5\% \times 15\%) = 6.4\%$. The decline in stunting each year is then the product of this cumulative increment and the stunting decline. For the first year, under the realistic scenario the decline is $3.45\% \times 8.9$ percentage points = 0.3 percentage points. For the optimistic scenario the decline is $3.45\% \times 13.4$ percentage points or 0.5 percentage points. The decline for the respective scenarios in 2030 is 1.8 and 2.6 percentage points, respectively.

To get the final stunting decline we subtract these declines due to convergence from the decline obtained from the interventions detailed above.

5. RESULTS

Figure 22 presents the national projections and Figure 23 presents district projections.⁶² Starting with a baseline stunting percentage of 26.9%, Indonesia can reduce its stunting to 22% by 2022 under the optimistic scenario with a higher incremental coverage of 10% on average relative to the realistic level of 5% for all interventions. Under the realistic scenario, Indonesia achieves a 22% stunting rate in 2024. By 2030 the stunting rate is expected to be 19% under the realistic and 15% using optimistic projections.

Figure 22: National stunting projections for Indonesia



⁶² We present the optimistic scenario for the district projections indicative of the decline one can expect. However, these do not reflect the actual reductions one may expect in Timor Tengah Selatan as the coverage rates used are for the national level with the cap on coverage applied as at the national level. The actual coverage rates are likely much lower in TTS and the data would need to be populated to get the true reductions in stunting. Since the projections are at an experimental stage we also do not consider the COVID-19 impact in the district projections.

Figure 23: Stunting projections for Timor Tengah Selatan



ANNEX 2: SELECTION CRITERIA

CALL FOR EVIDENCE OF SUCCESSFUL LOCAL INITIATIVES IN REDUCING STUNTING

BACKGROUND AND RATIONALE

Indonesia's child stunting and malnutrition rates are at crisis levels. According to the 2013 National Health Survey (Riskesdas), 37.2 percent of Indonesian children under 5 years of age (almost 9 million children) were stunted, 19.6 percent were underweight, 12.1 percent were wasted (low weight-for-height), and 11.9 percent were either overweight or obese. The prevalence of stunting in Indonesia remained virtually unchanged between 2007 and 2013, yet district level analysis shows there are districts that have significantly reduced stunting (Rokx et al., 2018). We want to learn how they did that.

Recent research highlights the need for a multi-sectoral approach. Analysis of data from the 2007 and 2013 Indonesian Riskesdas found that simultaneous access to four underlying determinants of nutrition—food security, access to a safe and hygienic environment, access to health services, and adequate care-giving—are associated with a significantly lower probability of being stunted than access to just one or two determinants. In 2013, some 23 percent of children under 3 years of age did not have access to adequate levels in any of the four drivers of nutrition in Indonesia; less than 1 percent had simultaneous access to all four drivers (World Bank, 2017b).

The Government of Indonesia is tackling the stunting crisis by embarking on an ambitious national strategy which will ensure that high-level commitment, management, and accountability to ensure supply- and demand-side interventions (both nutrition-specific and nutrition-sensitive) proven to reduce stunting in Indonesia are effectively converged, delivered, and implemented.

The Government of Indonesia's ambitious strategy and goal was chronicled in *Aiming High: Indonesia's Ambition to Reduce Stunting*. The book also tells the story of Indonesia's nutrition successes, challenges, and ambitions to reduce stunting from a multi-sectoral perspective.

As Indonesia embarks on the critical agenda, national and local leaders are increasingly aware of the need to implement stunting reduction strategies in an evidence-based manner and can benefit from lessons-learned drawn from local communities. Successful local initiatives that reduce stunting and improve maternal and child nutrition can serve to both inspire and provide the impetus to trigger knowledge sharing and 'know-how' exchange for national and local leaders. Many such local experiences however, remain undocumented or are not documented in a manner conducive to effective learning.

As a follow-up to *Aiming High*, the World Bank is writing a book that will feature successful local initiatives in reducing stunting, with an emphasis on the 'how-to'. The World Bank is thus, requesting for information and data from all nutrition counterparts (including government institutions, academia, non-governmental organizations, civil society organizations, private sectors, and development partners) on local initiatives that are at-scale or scalable, and have proven to be successful in reducing chronic child malnutrition or stunting. The initiatives submitted must be either an on-going program or a program completed in the past 2 years to allow for verification.

AIM

To document successful local initiatives in reducing stunting for knowledge sharing and to provide lessons learned for the operationalization of stunting prevention strategy in Indonesia.

AREAS OF INTEREST

Nutrition-specific interventions, defined as interventions addressing the immediate determinants of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving and parenting practices, and low burden of infectious diseases. Examples include: adolescent, preconception, and maternal health and nutrition; maternal dietary or micronutrient supplementation; promotion of optimum breastfeeding; complementary feeding and responsive feeding practices and stimulation; dietary supplementation; diversification and micronutrient supplementation or fortification for children; treatment of severe acute malnutrition; disease prevention and management; nutrition in emergencies (Bhutta et al., 2013).

Nutrition-sensitive interventions, defined as interventions addressing the underlying determinants of fetal and child nutrition and development—food security; fortification; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals and actions. Examples include: agriculture and food security; social safety nets; early child development; maternal mental health; women's empowerment; child protection; schooling; water, sanitation, and hygiene; health and family planning services (Ruel & Alderman, 2013).

GUIDING QUESTION

1. What is the name of your program/project/intervention? Who initiated the program and what drives the political commitment?
2. What are the aims and objectives of your program/project/intervention?
3. What is the nutrition-related indicator affiliated with your program/project/intervention? Please list all (see examples of nutrition-specific and –sensitive interventions listed above in Areas of Interest).
4. Who are your target beneficiaries and how many beneficiaries are currently enrolled in your program/project/intervention?
5. Where is the location(s) of your program/project/intervention and why was this location chosen? How big is your program coverage area (i.e. how many villages, how many sub-districts, districts)?
6. Please provide an overview of the program method/design and monitoring evaluation strategy, including the expected length of time to achieve the target results.
7. What challenges do you face in your program implementation? How did you tackle or plan to tackle the challenge of the program and achieve the desired goals?
8. What is the result of your program/project/intervention so far? How do you ensure transparency and accountability? Is there room for scalability?
9. How long has your program been implemented, and if you have a closing date, what would that be? What is the sustainability of your program/project/intervention?
10. Is this something that can be continued by the local community, local government or national government? What is the lesson learned for replication?





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