Achieving Food & Nutrient Security to Fight Against Double Burden of Malnutrition in Indonesia

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World Food Programme, Indonesia
Indonesia
237 million population

- Emerging low middle income country
- G20 member
- The largest ASEAN economy
- One of the Asia’s most vibrant and decentralized democracies
- Largest Muslim population

- Large nutritional disparities prevail, particularly in the eastern part of the country
  - Underweight 18%
  - Stunting 35.6%
  - Wasting 14.3%
- 25 millions Indonesian are food insecure
- Prone to recurrent natural disaster and increasingly impacted by climate change
Food and Nutrition Security Conceptual Framework

Figure 1.1 Food and Nutrition Security Conceptual Framework

Source: WFP, January 2009
Intervention Framework to Improve Food and Nutrition Security

**Food access problems:** Limited purchasing power due to poverty, limited employment opportunities, high food prices

**Facility problems:** No or limited water, road, electricity access

**Food availability problems:** Population number is higher than production capacity

**Health and Nutrition Problems:** Underweight among under five children

**Create job and income opportunities,** establish and strengthen social safety nets and insurance systems, food/cash for work.

**Build and rehabilitate basic infrastructure** (road, electricity, clean water)

**Increase district capacity in food production**

- Improve nutrition status and health of 0-23 months children, pregnant women, and family.
- Strengthen health and nutrition services in Puskesmas and Posyandu.
- Improve child care and feeding practices.
- Increase female education.

**Improved household's food access and resilience to shocks**

**Enhanced agriculture and rural development**

**Improved health and nutrition status**
Food Security

• The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”

• The concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences

• Food security is built on three pillars:
  – Food availability: sufficient quantities of food available on a consistent basis.
  – Food access: having sufficient resources to obtain appropriate foods for a nutritious diet.
  – Food utilization: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation
Food Security (UU No. 7 1996)

• Food Security as a condition when all people in the households have sufficient food at all time, represented as sufficient quantity and quality of food is safe and achievable conditions

• The increase in food needs is faster than the increase in rate food production

• The high rate of population growth in Indonesia is another challenge in fulfilling food needs
  – According to International Food Policy Research Institute, total food production globally increases only about 1 to 2 percent per year, while total world population increases approximately 4%
Food Security and Vulnerability Atlas of Indonesia

The collaboration between Food Security Council (FSC) and World Food Programme (WFP) brings us the Food Security and Vulnerability Atlas (FSVA) of Indonesia which covers 346 rural districts and 32 provinces. FSVA serves as a tool for evidence-based decision making in targeting and planning actions for food and nutrition security.

Key findings:
1. Agricultural output is growing at a high rate (about 3.5% per year during 2004-2007) and reached 4.3% in 2008.
2. 94% of households had access to the nearest health facility located within five km.
3. 21.6% of households did not have access to improved drinking water.
4. The national female literacy rate was 12.69%. The highest illiteracy rate was in Papua (32%), NTB (27%) and Bali (21%) provinces.
5. Higher underweight was found in NTT, Maluku, Kalimantan Selatan, NAD, Sulawesi Barat and Gorontalo provinces.
6. Out of 346 districts, 100 districts are ranked as higher priority based on The Composite Food Security Index.
7. Among 189 districts of Priorities 1-3 in the FSVA 2009, 38 are newly established districts.

Recommendations:
1. Improve food production to fulfill the food requirement in the country by improving agricultural infrastructure, natural and environmental resources and institutional capacity to manage food stocks at local level.
2. The Government's policies and programmes in poverty reduction should be directed to the control of natural resources exploitation with attention on security and the preservation of natural environment and needs to maintain its focus on pro-poor economic growth.
3. Climate Change Adaptation will be one of the key factors for sustainable improvements in food and livelihood access of the vulnerable households.
4. The nutrition strategies should focus on nutritionally vulnerable groups, including under two years old children and pregnant and lactating women.
5. Develop district and community level contingency plans for natural disaster in disaster prone districts.

Dimensions of Food Security:
1. Food Availability
2. Food and Livelihoods Access
3. Food Utilization
4. Vulnerability to Transient Food Insecurity

Legend:
- Priority 1 Districts
- Priority 2 Districts
- Priority 3 Districts
- Priority 4 Districts
- Priority 5 Districts
- Priority 6 Districts
- Priority 7 Districts
- Urban Area/No Data

9 Indicators of Composite Food Security Index:
- Food Availability
- Poverty
- Access in Food Security
- Access to Food Security
- Food Security
- Income
- Food Security
- Education
- Access to Food Security

http://foodsecurityatlas.org/idn/country
PROPORSI PENDUDUK DENGAN ASUPAN KALORI < 1.400 KKAL DAN < 2.000 KKAL TAHUN 2011

Sumber Data : Susenas 2011
Poor $\rightarrow$ less dietary diversity

- Not poor: Staple, Vegetables, Eggs, Meat, Milk
- Less poor: Staple, Vegetables, Eggs, Meat
- Moderate poor: Staple, Vegetables, Eggs
- Very poor: Staple, Vegetables
- Very, very poor: Staple
Chronic malnutrition - stunting

- Growth faltering

- Children are smaller and shorter but appear to be normal

- Starts in utero, growth failure in a child that occurs over a slow cumulative process as a result of an inadequate nutrition and/or repeated infections.

- Stunting is measured by the height-for-age index.

- Country level prevalence varies 23% - 58%
Acute under-nutrition - Wasting

- Growth failure as a result of a recent rapid weight loss or failure to gain weight.

- It can be both related to lack of protein and energy (macronutrients), but also to a lack of micronutrients (vitamins and minerals).

- Wasted children are extremely thin.

- Wasting is measured by the weight-for-height index.
Peta 4.4/Map 4.4
Tinggi badan Anak (< 5 Tahun) di Bawah Standar
Children (< 5 Yr.) Stunting

Legend/Legend:
% Anak/ % Children
>= 40
30 - <40
20 - <30
< 20
Tidak ada Data /No Data

Sumber Data: Riset Kesehatan Dasar (RISKEDES) 2007, Departemen Kesehatan
Data Source: Basic Health Research (RISKEDES) 2007, Ministry of Health

Batas Provinsi/Province Boundary
Batas Kabupaten/District Boundary
PREVALENCE OF STUNTING AMONG CHILDREN UNDER FIVE IN INDONESIA

(Riskesdas 2010)
Prevalence Stunting in ASEAN Countries
(Year 2003-2008)

- Timor-Leste: 54
- Laos: 48
- Cambodia: 42
- Myanmar: 41
- Indonesia: 37
- Vietnam: 36
- Philippines: 34
- Thailand: 16
- Singapore: 4

World Average: 26.9
Prevalence of Stunting among 50 countries
(Tahun 2003-2008)

World Average 26.9

Indonesia peringkat ke-42 (37)

Sumber : UNICEF 2009
Prevalence of Malnutrition by Socio-economic status in Indonesia (Riskesdas, 2010)
Damage Suffered in Early Life Leads to Permanent Impairment

- Undernourished children are more likely to become short adults and to give birth to smaller babies.
- Evidence links stunting to cognitive development, school performance and educational achievement.
- Poor fetal growth or stunting in the first 2 years of life leads to reduced economic productivity in adulthood.
- Child’s height for age is best predictor of human capital.

www.GlobalNutritionSeries.org
Impact of nutrition and health towards brain’s growth and development

“Otak Kosong” or Empty Brain is permanent “Irreversible loss of opportunity”

Lost Generation (Labor)

Burden

Well nourished & healthy

Smart child—Life in all its Fullness Quality Human Resource

Higher Income (>7% more)

Resource

By: Prof. Ascobat Gani
3 Year Old Children

Normal

Undernourished

http://www.feralchildren.com/image.php?if=figures/perry20021
**Saving lives: Wasting, Stunting, Micronutrient Deficiencies and Risk of Dying**

### Attributed Child Mortality Burden by Nutritional Cause

- **Micronutrient deficiencies among non-stunted, non-wasted children account for 10% of child mortality**
- **Stunting accounts for 15% of child mortality**
- **MAM accounts for 10% of child mortality**
- **UNICEF: Severe acute malnutrition accounts for only 4% of child mortality**

*Source: Ethiopia Demographic and Health Survey (2011); Lancet Nutrition Series, 2008*
The Consequences of Stunting (Lancet 2008)

• Chronic Diseases: Children who are undernourished in the first 2 years of life and who put on weight rapidly later in childhood and in adolescence are at high risk of chronic diseases related to nutrition

• The window of prevention = the first 1000 days = from conception to 24 months
FIGURE 1
Mean anthropometric z scores according to age for all 54 studies, relative to the WHO standard (1 to 59 months).

Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions
Cesar Gomes Victora, Mercedes de Onis, Pedro Curi Hallal, Monika Blössner and Roger Shrimpton
Pediatrics 2010;125:e473-e480; originally published online Feb 15, 2010;
Prevalence of Over Nutrition among Children Under Five and Adults in Indonesia

- **Balita 2007**: 12.2
- **Balita 2010**: 14.2
- **Dewasa 2007**: 19.1
- **Dewasa 2010**: 21.7
Prevalence of Hypertension & Nutrition Status by age groups and gender, Riskesdas 2007

Atmarita, Balitbangkes
Prevalence of CVD*) & Nutrition Status by age groups and gender, Riskesdas 2007

*) subject reported that he/she has been diagnosed CVD

*Atmarita, Balitbangkes
Prevalence of Stroke*) & Nutrition Status by age groups and gender, Riskesdas 2007

*) subject reported that he/she has been diagnosed Stroke

Atmarita, Balitbangkes

*) Sampel yang menjawab Ya, pernah didiagnosis Penyakit kencing manis (DM)
Atmarita, Balitbangkes
What is the DBM?

- THE DBM is a new concept (James 2000), recognizing that most countries have to deal with undernutrition and overnutrition problems which are affecting individuals in the same population across the life course.

The DBM can occur: In the same population; In the same population group (e.g. women); In the same household; In the same individual
Figure 15. The Double Burden of Malnutrition: Causes and Effects across the Life Course

- **Adults**
  - Overweight and obese with increased risk of chronic

- **Baby**
  - Low birth weight
  - Inadequate length growth

- **Malnourished mother**
  - Inadequate fetal growth

- **Teenage pregnancy**
  - Increased consumption of Group 3 snack foods and insufficient exercise

- **Young child**
  - Stunted
  - Increased consumption of energy dense snack foods
  - Insufficient exercise

- **Adolescent**
  - Stunted
  - Accelerated weight growth

- **Higher mortality**
- Increased risk of adult chronic diseases
- Poor breastfeeding, weaning and frequent infections
The consequences of the DBM

- Early life undernutrition causes a large proportion of young children to die, mostly from infectious diseases.
- Among those that survive, their lifelong capacity to resist disease, to carry out physical work, to study and progress in school, are all impaired.
- Survivors are more likely to suffer from diet-related non-communicable diseases.
What are the consequences of DBM?

Early life undernutrition increases the risk of later life overnutrition through “metabolic programming”

**Short term**
- Brain development

**Long-term**
- Cognitive & educational performance
- Immunity
- Work capacity
- Diabetes
- Obesity
- Heart disease
- High blood pressure
- Cancer
- Stroke and ageing

*THIS IS THE “CONCERN” IN LMICS*
The consequences of the DBM

Most NCD deaths already occur in LMICs

The main cause is cardiovascular disease
<table>
<thead>
<tr>
<th>Stage of life course</th>
<th>Direct interventions</th>
</tr>
</thead>
</table>
| Conception to birth  | - Micronutrient (Iron/folate) supplements  
|                      | - Balanced protein energy supplements*  
|                      | - Deworming  
|                      | - Reduction of household/cigarette smoke  
|                      | - Presumptive radical treatment for malaria*  
|                      | - Insecticide-treated bed nets*  |
| Young Children (0-2 and 3-5 years) | - breastfeeding promotion,  
|                                      | - appropriate complementary feeding promotion  
|                                      | - Hand washing and hygiene interventions  
|                                      | - young child supplementation with vitamin A and zinc,  
|                                      | - management of severe acute malnutrition |
| Children (5-18 years) | - School based  
|                       |   - providing healthy meals  
|                       |   - promotion and provision of daily physical exercise  
|                       |   - Weekly iron supplements/ deworming  |
| Adulthood (18+yrs)   | - Medical service provider counselling on healthy diet  
|                      | - Worksite encouragement to exercise and eat healthy foods |

Lancet Nutrition Series Package for MCU (Bhutta et al 2008)  
* depending on local circumstances

Reviews of evidence on diet and nutrition causes of obesity.  
- Gortmaker et al 2011 Lancet Obesity Series 4
<table>
<thead>
<tr>
<th>Stage of life course</th>
<th>Indirect interventions</th>
<th>Page 29 of DBM paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conception to birth</td>
<td>- Prevent child marriage and teenage pregnancies</td>
<td>- Educational campaigns</td>
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<td></td>
<td>- Conditional cash transfer programmes (with nutrition education)</td>
<td>- Fiscal food policies</td>
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<td></td>
<td></td>
<td>o Food subsidies</td>
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<td></td>
<td></td>
<td>o fat/sugar taxes</td>
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<tr>
<td>Young Children (0-5 years)</td>
<td>- Code of marketing of breastmilk substitute</td>
<td>- Transport and urban planning</td>
</tr>
<tr>
<td></td>
<td>- Conditional cash transfer programmes (with nutrition education)</td>
<td></td>
</tr>
<tr>
<td>Children (5-18 years)</td>
<td>- No vending machines or junk food sales</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- No advertising of food aimed at children</td>
<td></td>
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<tr>
<td>Adulthood (18+yrs)</td>
<td>- Food labelling</td>
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<td></td>
<td>o Nutrition signposting</td>
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<td>o Control food claims</td>
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<tr>
<td>Sector</td>
<td>Pillar</td>
<td>Sustainable Food Security</td>
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<tr>
<td>Health</td>
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<td>Public Works</td>
<td>• Rural roads</td>
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<td>• irrigation</td>
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<tr>
<td>Agriculture</td>
<td>• Food Production (seeds,</td>
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<td></td>
<td>fertilizers)</td>
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<td>Education</td>
<td>• School Gardens</td>
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<td></td>
<td>• School meals</td>
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<tr>
<td>Social Security</td>
<td>• Food Access (cash transfers)</td>
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<tr>
<td>Industry and Commerce</td>
<td>• Food availability (manufacture and marketing)</td>
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</tbody>
</table>
Cost of Diet

- Cost of the Diet method applies linear programming to calculate the minimum cost of a nutritious diet based on locally available foods and their prices.
- Linking economic access to poor nutritional outcomes.

**Example of minimum cost diet for a family of 4 in NTT**

**What is the “Minimum Cost Nutritious Diet”?**

- A *theoretical* diet, fulfilling all nutritional needs of a specific age group at the lowest possible cost, based on local foods. This diet is theoretically possible to eat.
- NOT what people are actually eating, NOR what they are supposed to eat.

Calculations are based on *linear optimization* done by the Excel solver function.

165,515 IDR (18.40 USD) for a family of 4 (excluding child 12-23 m) without preferences...

Source: Pilot Food Security and Nutrition Monitoring System in Indonesia, TTS, April, 2011, n=50; WFP CoD Analysis in TTS, 2011.
Results of piloting CoD in Indonesia

- Cost of nutritious diet (Rp/wk) – 2011/12 + affordability, based on Susenas data

<table>
<thead>
<tr>
<th></th>
<th>TTS</th>
<th>Sampang</th>
<th>Surabaya</th>
<th>Brebes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 6-23 mo</td>
<td>16,796</td>
<td>10,446</td>
<td>13,587</td>
<td>11,550</td>
</tr>
<tr>
<td>Other family members (3)</td>
<td>196,015</td>
<td>126,071</td>
<td>141,430</td>
<td>131,264</td>
</tr>
<tr>
<td>Total hh</td>
<td>212,812</td>
<td>136,518</td>
<td>155,017</td>
<td>142,814</td>
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<tr>
<td>% can afford – food expenses</td>
<td>25</td>
<td>59</td>
<td>80</td>
<td>69</td>
</tr>
<tr>
<td>% can afford – 70% of total expenses</td>
<td>20</td>
<td>63</td>
<td>92</td>
<td>73</td>
</tr>
</tbody>
</table>
Results indicate that in TTS between 84% and 90% of all HHs are not able to afford a Minimum Cost Nutritious Diet

84% - 90% of HHs cannot afford

Nutritious Food is not affordable, hence solution is FOOD + EDUCATION

10% - 16% of HHs can afford

Nutritious Food is affordable, hence solution is EDUCATION and PREVENTION, LESS ON FOOD

Source: Pilot Food Security and Nutrition Monitoring System in Indonesia, TTS, April, 2011, n=50; WFP CoD Analysis in TTS, 2011.
Note: Household Size: 5 members, including 1 child 12-23 months
First results indicate that in Sampang between 86% and 94% of all HHs are able to afford a Minimum Cost Nutritious Diet.

86% - 94% of HHs can afford

Nutritious Food is affordable, hence solution is EDUCATION and PREVENTION, LESS ON FOOD

Nutritious Food is not affordable, hence solution is FOOD + EDUCATION
CoD pilot Indonesia

• This tool gives good impression of economic aspects + constraints for nutritious diet
• Strategies & programs should also take into consideration:
  – NE + BCC – to stimulate best choices
  – Food preferences – what do people like & do
  – Expenditure pattern – how is extra cash used
• Different context + options in different places – local decision making
Malnutrition

Inadequate dietary intake

Inadequate access to food

Inadequate care for children and women

Insufficient health services & unhealthy environment

Disease

Food prices

Incomes

Government expenditures

Food Vouchers - targeted

Food Subsidies

Grants

Specially formulated foods

Safety Nets - targeted

Options when people cannot afford a diet that meets nutrient requirements
Impact of social transfers on malnutrition

Social transfer programmes can have important effects on poverty, hunger and nutrition. These effects occur through various channels; an essential one is increased cash via social transfers that enables poor people to access more and better-quality food.

Yes, but specific questions:
- Can cash transfer close the nutrient gap for young children?
- What is impact of cash transfer on child undernutrition?
- How much cash should & can be provided?
- Is cash spent on nutritious foods?
- Do available foods contain the most appropriate mix of nutrients?
Food-for-Work Programs in Indonesia Had a Limited Effect on Anemia

Regina Moench-Pfanner,†2 Saskia de Pee, † Martin W. Bloem, †** Dorothy Foote,* Soewarta Kosen, † and Patrick Webb††

Helen Keller International, *Jakarta, Indonesia, †Singapore, and **New York, NY; †National Institute for Health Research and Development, Jakarta, Indonesia; and ††United Nations World Food Programme, Rome, Italy


• Food, vouchers or cash supports household and likely improves diet
• But, extent to which nutrient needs of specific groups are met varies and hence the impact on nutritional status varies
Study of impact of social transfer on malnutrition in Niger Epicentre/MSF & WFP

• Just protecting the child – child-specific food is likely better than equivalent amount as cash (±10 euro/mo)

• Support to vulnerable households – include specific nutritious foods for vulnerable groups (u2, PLW)
Scaling Up Nutrition

Together, we can achieve what no single effort could, and make the world a healthier, stronger place for us all.
What is the SUN?

- Focused on the importance of thousand days

- SUN is a multi-stakeholder movement focused on increasing prioritization, resources and action to reduce global child undernutrition and promotes the scale up of nutrition specific and sensitive approaches through country-lead and coordinated approaches. SUN website: [www.scalingupnutrition.org](http://www.scalingupnutrition.org).

- The SUN Framework & Roadmap (2010) outlines the strategies for addressing child undernutrition through coordinated, multi-stakeholder and country-lead approaches to scaling up nutrition specific and sensitive interventions.

- Direct nutrition specific interventions include: increasing intake of vitamins and minerals for mothers /young children (and all with food fortification), promoting good nutrition practices (breast feeding, complementary feeding, hygiene), therapeutic feeding for malnourished with special foods.
31 SUN Countries

- Bangladesh
- Benin
- Burkina Faso
- Burundi
- Ethiopia
- Gambia
- Ghana
- Guatemala
- Haiti
- Indonesia
- Kenya
- Kyrgyzstan
- Lao PDR
- Madagascar
- Malawi
- Mali
- Mauritania
- Mozambique
- Namibia
- Nepal
- Niger
- Nigeria
- Peru
- Rwanda
- Senegal
- Sierra Leone
- Tanzania
- Uganda
- Yemen
- Zambia
- Zimbabwe
What countries agreed in 2012

1. 40% reduction of the global number of children under 5 who are stunted
2. 50% reduction of anemia in women of reproductive age
3. 30% reduction of low birth weight
4. No increase in childhood overweight
5. Increase exclusive breastfeeding rates in the first 6 months up to at least 50%
6. Reducing and maintaining childhood wasting to less than 5%
SUN MULTI STAKEHOLDERS

- **Government**: inisiatior, fasilitator, dan motivator
- **Donor**
- **Business Community**
- **Civil Society**
- **Dev Partners**
- **Academia/Professional Org**: Think Tank

**Indonesia Sun Movement**
Conclusions

- The nutritional status of the Indonesian people has steadily improved over time but large disparities between provinces.

- The rapidly emerging of double burden of malnutrition need to be addressed to avoid increased NCD and economic lost.

- Improvement of complementary feeding through strategies such as counseling about nutrition for food-secure populations and nutrition counseling, food supplements, conditional cash transfers, or a combination of these, in food-insecure populations could substantially reduce stunting and related burden of disease.

- Indonesia is so diverse. Ensuring food security for all has been the top priority for the GOI. There has been constant need to improve geographical targeting of more vulnerable areas for food and nutrition security related interventions.
Conclusions

- Monitoring the consequences of high food prices for access to food, nutritional status and health among different target groups in different areas of the country is necessary to enable policy makers to undertake appropriate and specific action to limit the devastating impact of food an nutrition security on health and productivity among the population.

- Social safety nets (SSN) provide an income transfer to vulnerable households. To maximize impact on nutrition – complement the transfer with special nutritious products for specific target groups (u2, PLW).

- Slowing population growth is essential in achieving food and nutrition security.
Reference:

• MW Bloem, S de Pee, LT Hop, NC Khan, A Laillou, Minarto, R Moench-Pfanner, D Soekarjo, Soekirman, JA Solon, C Theary, and E Wasantwisut. 2013. Key strategies to further reduce stunting in Southeast Asia: Lessons from the ASEAN countries workshop. Food and Nutrition Bulletin
• www.foodsecurityatlas.org
Thank you!
Terima Kasih!