1. Background

It is recognized that household food security could impact individual nutritional status, and thus, their wellbeing. In Indonesia, it is thus essential to periodically monitor the impact of the global financial crisis and another wave of high food prices on vulnerable populations.

In June 2009, for the first time, a Food and Nutrition Security Monitoring System (FNSMS) at the household level was established in Indonesia. It is expected to be an important tool for the Government for early warning and timely response planning. The FNSMS is led by the Central Food Security Agency. It is implemented by the Food Security Offices of four provinces in 20 districts vulnerable to food insecurity. All districts are located in four islands (East Java, Nusa Tenggara Timur or NTT, Central Sulawesi and West Kalimantan). The districts were selected based on the 2005 Indonesia Food Insecurity Atlas. In each province, 250 households living at 10 villages are periodically monitored. Data on household food security are collected on a quarterly basis while data on nutritional status of children under-five and their mothers are collected twice a year.

Four quarterly provincial FSNMS Bulletins will be produced during the pilot phase (May 2009 – May 2010) of the FNSMS. This first Bulletin presents food security data collected from 250 households in 5 selected districts (Parigi Moutong, Buol, Donggala, Morowali and Banggai Kapulauan) of the Central Sulawesi province from mid June to mid July 2009.

The Pilot FNSMS is jointly supported by WFP, UNICEF and ILO. It also benefits technical advice from the National Statistics Agency (BPS), SEAMEO TROPMED, University of Indonesia and Bogor Agriculture University.

2. Highlights

- Overall, 14% of all surveyed households were food insecure, 36% vulnerable and 50% food secure. A higher proportion of food insecure households were found in rural (22%) than in urban area (6%).
- More food insecure and vulnerable households were found among households without regular earnings such as agricultural wage laborers as well as amongst those depending on remittance, sellers of food crops, vegetables or fruits, and non-agriculture skilled wage laborers.
- In both areas, food insecurity was mainly attributed to limited food access due to irregular and low remuneration cash income but also to limited ownership of assets and to low access to land. Moreover, in urban area, as compared to food secure households, a high proportion of food insecure were using cooking fuels other than wood and experienced difficulties in the last three months.
- Unemployment rate was 4% and it was higher in urban (9%) than in rural area(0%). School absenteeism was reported among 23% of households, and it was higher in rural area. The main reason of school absenteeism was official holidays. In total, 1% of households engaged school age children (SAC) in income earning activities, mostly in household chores and agriculture and fishing sector. Out-migration was revealed at 1.2% and in-migration was at 0.8%. Households food security did not vary with unemployment rate, schools absenteeism, out- and in-migration or with SAC engagement in earning activities.
- Between April and June 2009, 30% of rural and 47% of urban households experienced difficulties such as very limited cash, high food prices, sickness/health expenditure.
- Food insecurity in rural area was likely to be chronic than transitory and it was associated with structural factors. In urban setting, it seems to be associated with both, structural and temporary factors.
- When facing difficulties to get food or to cover other essential expenditures, the households opted for short-term strategies to acquire food while seeking to protect their livelihoods. They mainly sought for additional jobs, they changed consumption pattern or they reduced expenditure on health care. Households who struggled the most with food acquisition were those engaged in the sale of vegetables/fruits.
- Government’s Subsidized Rice for the Poor program (RASKIN) provided assistance to 60% of households while 33% of them benefited from the Cash Transfer program (BLT). For both programmes, the coverage was higher coverage in rural area. Although these programs might help food insecure households in the short term, they likely have limited impact on root causes.
3. Recommendations

- To develop programmes which address basic causes of food insecurity such as those on poverty reduction by the creation of employment and cash income opportunities, increasing access to land, livestock and improved water sources as well as facilitating access to assets.

- Continue Government’s safety net programs (RASKIN and BLT) with the same focus on the poor and food insecure households. Yet, the targeting mechanism and operational management of both programmes need to be significantly improved, to effectively support the needy households.

4. Methodology

All details of the methodology are presented in Annex 1. In brief, 250 households (urban: 125; rural: 125) were randomly selected and interviewed using a pre-tested questionnaire. During the interviews with the household head, data were collected on household composition, education of school-age children (SAC) and child labor, type of housing, access to safe water, to electricity and to fuel, food crops, ownership of land, livestock and of assets (fridge, stove, TV, radio, motorbike, bicycle, sewing machine, farming machine, non-farm machines, shop), cash income sources, joblessness and migration, food consumption (last 7 days), expenditures (food and non food of last calendar month), difficulties and coping strategies and formal assistance (last 3 months).

Data on the type of housing were collected through direct observation. The type of housing was categorized as: a) nondurable materials (wood, herb), b) semi-permanent (ground part cement/brick, upper part bamboo/wood), and c) durable (brick, cement).

To assess access to food, two proxies of access to food which are the monthly per capita expenditure (MPCE) and the share of food expenditure were analyzed. The MPCE was calculated and the three following categories were defined based on latest provincial poverty line (BPS 2008), and the World Bank’s threshold of US$2 PPP (Purchasing Power Parity, PPP) converted into IDR using the national PPP exchange rate: 1) Poor: < IDR 126,746 for rural and IDR 199,006 for urban, 2) Near poor: between the mentioned provincial poverty line and US$2 PPP or IDR 331,846, and 3) Non-poor: > IDR 331,846.

From the total household expenditure, the share of food expenditure which included purchased food as well as food from own production was calculated. The higher the share of food expenditure, the greater the likelihood that a household has a poor food access. Households were classified into 3 food expenditure groups: 1) Poor: > 65%, 2) Average: between 50%-65%; and, 3) Good: < 50% of total expenditure.

Data on food eaten by children 12-59 months and other household members in the last 7 days were used to define a food consumption score (FCS), a proxy of current household food security. The FCS was calculated and, based on their score, each household was classified in one of the three groups: 1) Poor: FCS = 0-28, 2) Borderline: FCS = 28.5-42; and 3) Acceptable: FCS > 42. A higher FCS indicates a more diversified diet. The overall household food security was classified in three groups based on food access and food utilization indicators. Food access groups were determined by matching the monthly per capita expenditure groups (poor, near-poor, non-poor) with monthly food expenditure groups (poor, average, good). Second, composite food security groups were determined by matching the food consumption groups with food access groups. This resulted in three final categories namely food insecure, vulnerable and food secure.

Data entry and analyses were performed using SPSS 16.0. ANOVA and Chi-square tests were used to assess differences in household food security. For all analyses, a probability value of 0.05 was accepted as significant.

5. Food security

5.1 Characteristics of households

All selected household were interviewed. On average, the mean household size was 4.9 members (urban: 5.3; rural: 4.6). A small proportion (10%) of households were female-headed (urban: 12%, rural: 9%). The majority of households (78%) had at least one school-age child (SAC) (urban: 84%, rural: 73%). Around one every three households had at least one child under 5 years old (urban: 37%, rural: 31%). In rural area, around 46% of the households mainly earned cash income from agricultural activities, while non-agricultural wage labor and self employed were main cash income sources in urban area. The socio-demographic characteristics of the surveyed households by province are presented in Annex 2.
5.2 Household Food Access

Based on the monthly expenditure per capita, 28% of all households were classified as having a poor access to food (figure 1). The proportion of households with a poor access was higher in rural (38%) than urban area (18%).

The higher proportion of households with poor access to food was found in Donggala district (60%), while the lowest was observed in Morowali district (6%).

Overall, based on the share of expenditures on food, 65% of households had a poor access to food (figure 2). The results also indicated that 55% of urban and 75% of rural households were classified as having a poor access.

The highest proportion of households with a poor access was observed in Parigi Mountong district (80%), while the lowest was in Banggai Kepulauan district (54%).

Based on the results of the food consumption score, overall, 4% of all households were considered as having a poor food consumption, 15% were borderline and 81% had an acceptable FCS (figure 3).

The proportion of households with a poor FCS was the highest in Banggai Kepulauan and Donggala districts (8%), while there was none in Morowali district (0%).

Data also indicated that on average, all households members including children under-five ate 3 times a day. However, young children in Buol district were fed only 2 meals a day. Significant differences were observed between districts.
Figure 4. Composite food security groups by district and by area

In this study, the food security group was considered as the best proxy of the level of household food security since it comprises two dimensions of the food security definition namely access and utilization. Results from that indicator show that 14% of all households were food insecure, 36% vulnerable and, 50% food secure (figure 4). Nearly four times more food insecure households were found in rural (22%) than in urban area (6%). Banggai Kepulauan, Donggala and Parigi Moutong districts had the highest percentage of the food insecure households (20%), while the lowest percentage was observed in Morowali district (4%).

5.3 WHO are the food insecure?

To answer the question of who are the food insecure, the characteristics of households were investigated namely: location (urban/rural, district), sex and age of the household head, household size, number of dependants (school children aged less than 18 years and adults above 60 years), income source, housing, access to safe water, cooking fuel, ownership of assets, staple food production, land and livestock ownership, experienced shocks, migration, joblessness, child school absenteeism, and child labour.

Results showed a higher proportion of food insecure households among those without a regular income source (figure 5). As a matter of fact, a higher proportion of food insecure and vulnerable households were found among agriculture wage laborers, those depending on remittances, sellers of food crop produce, vegetables or fruits, and non-agricultural skilled wage laborers. In contrast, a much lower proportion was found in self-employees and petty traders.

Type of housing, access to safe water, cooking fuel and ownership of assets

In total, 35% of the surveyed households lived in nondurable material houses (urban: 41%; rural: 30%). A higher proportion of households living in nondurable material houses was found in Buol district (50%), while the lowest proportion was observed in Morowali district (20%). In both areas, a higher proportion of food insecure households lived in nondurable houses than in other types of housing.

Overall, 32% of households did not have access to improved water sources (urban: 14%, rural: 50%). The access was lower in Parigi Moutong district (46%) while it was better in Morowali district (96%). Food secure households had a better access to clean water in urban and rural areas (figure 6).

Nearly three among every four households (73%) were using wood as cooking fuel. However, the proportion was higher in rural (88%) than in urban area (58%). In urban, more food insecure households were found among those using wood than using other cooking fuels such as animal dung, biogas or kerosene.
In total, 15% of the households did not have any assets (urban: 6%; rural: 24%). On average, each household had 3.2 assets in rural area while it was 4.1 in urban setting. By district, the higher ownership of assets was amongst households living in Morowali district (3.7), while the lowest proportion was observed amongst households of Parigi Moutong district (1.7 assets). Data (not shown) showed that ownership of assets was less among food insecure households. More than one every three urban households and nearly one every two rural households without any assets were food insecure (figure 7). In both areas, the proportion of food insecure households was higher among those without a motorbike, fridge or radio.

Access to land and staple production

Overall, 42% of households owned land (urban: 9%; rural: 75%). The proportion of households owning land was higher in Parigi Moutong district (52%), while it was lower in Buol district (32%). The mean size of owned land was 1.1 ha in both areas. However, among the land owners, 15% owned less than 0.5 ha (urban: 27%, rural: 3%). On total, 1.2% of all households rented land (urban: 1.6%, rural: 0.8%). The mean size was estimated at 1.25 ha. No household mortgaged out their land. Among the food insecure households, 49% did not own land, and another 3% had less than 0.5 ha. The result on land size should be interpreted with caution due to possible under- or overestimation of land size by households in both areas, there were no differences between food security status by land ownership, land rental, land size and land mortgage.

On total, 27% of all households (urban: 4%; rural: 50%) produced staple foods. Many more households in Morowali district (44%) produced staple food than households in Buol district (4%). The average annual total staple production was 780 kg (SD: 2018 kg) per household and it was higher in rural (1,158 kg, SD: 2086 kg) than in urban area (402 kg Sd: 384 kg). The production widely varied amongst households in both areas. Their food self-sufficiency was also calculated based on the Indonesian norm set at 10 kg/person/month. Based on the reported production, each staple producing household was classified into one of the 3 following categories: poor food self-sufficiency (staple production covers up to 3 months or mos a year), average (3-7 mos), and good (> 7 mos). Results showed a higher percentage of poor and average self-food sufficiency households in urban (60%) than in rural area (34%). More households were staple food deficit in Buol district. Among the food insecure households, 14% produced enough staples to cover their need up to 7 months.

In 2009, a similar pattern of crop production was found between rural and urban areas as well as between districts. Up to date, overall 89% of the total annual estimated requirement of the staple producing households has been met by the accumulated harvested crop production (urban: 83%; rural: 95%).

Food stock available during the survey

On average, 80% of all households had staple stock during the survey (urban: 67%; rural: 93%). Among those with stock, the average stock was 62kg (SD: 107 kg) of cereals (urban: 42 kg, SD: 52 kg; rural: 83 kg, SD: 110 kg). By district, a higher stock was found in Banggai Kepulauan district 151 kg (SD: 204 kg), while the lowest was in Buol district (15 kg, single value, SD). In both areas, the proportion of food secure households was not significantly related to the level of staple in stock.

Livestock

Overall, 35% of all households raised at least one animal (urban: 20%; rural: 50%). On average, they raised 3.7 animals in rural area while it was much lower in urban setting (1.4). The highest ownership of livestock was found amongst households of Buol district (10.4 animals) while the lowest was observed in Parigi Moutong district (3). Food insecurity was not significantly associated with livestock ownership.
Unemployment and migration

Overall, 4% of households (urban: 9%; rural: 0%) had at least one unemployed member (15-59 years, excluding students). The highest proportion was observed in Donggala district (18%) while none was found in Buol and Parigi Mountong districts.

Around 1% of all households had out- and in-migrated members. Their destination was Uluonso, Central Sulawesi. No significant difference in food security status was found between households with and without jobless members, and neither with migration.

Education of school-age children (SAC) and child labor

In total, 78% of households had at least one school-age child (urban: 84%; rural: 73%). Around 23% of the households with SAC (urban: 19%; rural: 28%) reported having their children absent from primary or secondary schools 5 days or more during the last month. Main reasons for absenteeism were official holidays. The highest absenteeism rate was observed in Donggala district (43%), while the lowest was found in Buol district (0%). No statistically significant difference in food security status was found between the households with and without children absent from school.

Less than 1% of households in each area (total 2 cases) had SAC being involved in income earning activities. Child work was found in Donggala and Parigi Mountong districts (2 cases), and in household chores and agriculture/fishing activity. Their working hours were less than 4 hours a day. No statistically significant difference in food security status was found between the households with and without children being involved in income earning activities.

Experienced difficulties

In total, 38% of all households (urban: 47%; rural: 30%) have faced some shocks in the last three months. In urban area, no or very limited cash (22%), high food prices (18%), and sickness/health expenditures (17%) were the three more common experienced difficulties by the households. In rural setting, no or very limited cash (32%), high food prices (18%) and sickness/health expenditure (10%) were also more frequently cited. More households in Banggai Kapulauan district claimed experienced shocks.

A higher proportion of food insecure households were found among urban households who experienced shocks.

5.4 Why are they food insecure?

Food insecurity in both rural and urban was mainly attributed to limited food access due to irregular and low remuneration cash income but also to limited ownership of assets and to low access to land. Moreover, in urban area, as compared to food secure households, a high proportion of food insecure were using cooking fuels other than wood and experienced difficulties in the last three months.

5.5 How are they coping?

In total, 38% of households experienced difficulties to buy food or cover other essential expenditures (health, education, cooking fuel, etc.) during the past 30 days. Urban households (47%) experienced such difficulties more than in rural households (30%).

In general, the households mostly adopted temporary, short-term coping strategies which were at an acceptance and non-depleted level, to acquire food while seeking to protect their livelihoods. In urban area, three more commonly adopted strategies were seeking alternative/additional jobs (48%), limiting meal portion size (36%), and restricting adult’s consumption for small children to eat (32%). In rural area, seeking alternative/additional jobs (35%), reducing snack (32%) and relying on less preferred and cheaper foods (30%). A reduction of the meal portion size, particularly among children, and restricting adult’s consumption for small children to eat indicated worst food insecurity conditions.

On total, 2% of households in each area who experienced the above difficulties in obtaining food engaged children in income earning activities in the past 30 days. Only 0.4% of households in each area increased out-migration in Indonesia, and another 0.8% of rural households increased out-migration abroad.
Reduced Coping Strategies by main income source - Central Sulawesi

- Garbage collector: 187
- Sale of vegetables or fruits: 14
- NGO, private company salary: 92
- Sale of cash crops production: 79
- Sale of animals/animal products/fish: 74
- Agricultural wage labour (skilled and non-skilled): 69
- Non-agriculture skilled wage labor: 62
- Government employee salary: 62
- Non-agriculture unskilled wage labour: 57
- Petty trade (small shopkeepers): 47
- Self-employed of small scale: 37
- Self-employed of medium scale: 35
- Sale of food crops production: 31
- Remittances: 14
- Urban: 71
- Rural: 63
- Total: 67

0 20 40 60 80 100 120 140 160 180 200

To identify households who were struggling the most, the Reduced Coping Strategy Index (RCSI) was calculated, based on 5 food-related coping strategies (eat less-preferred food, borrow food or rely on help from relatives/friends, limit portion size, limit number of meals, and restrict consumption by adults so that small children can eat). A higher RCSI indicates that the household is struggling more.

The average RCSI was 67 (urban: 71; rural: 63). Households engaged in garbage collector and sales of vegetables/fruits were struggling the most (Figure 8). In both areas, the association between RCSI and food security status was not significant.

5.6 Formal Assistance

RASKIN assisted 60% of the surveyed households (urban: 50%; rural: 71%) while BLT provided assistance to 33% of them (urban: 24%; rural: 42%). The proportion of the food insecure was higher among urban recipients of both programs, as well as among rural recipients of BLT program (Figure 9). In rural area, a slightly lower proportion of food insecure households were found among rural recipients of RASKIN program but this difference was not statistically significant. On one hand, a relatively similar level of food insecurity among recipients and non-recipients, or its higher among the recipients in a certain area can be explained by the fact that both programs aim to target the poor who were also more vulnerable to food insecurity. On other hand, it may also suggest that a more universal (equal) distribution of these assistances, especially RASKIN, in both areas might have led to a smaller portion of assistance being distributed, and hence, was not enough to significantly improve food insecurity of the poorest quintile households.

In summary, these programs, while they can meet some food needs of the food insecure households in the short term, likely have limited impact on the chronic underlying causes of that situation such as falling wages, rising food prices, limited employment opportunities and cash income.
ANNEX 1
Methodology of Household Food Security Analysis

Household food security in this FNSMS Bulletin is analyzed using methodology which is highlighted in the second edition of Emergency Food Security Assessment (EFSA) Handbook (WFP, January 2009). The analysis is based on the Food and Nutrition Security Conceptual Framework which considers food availability, food access and utilization as core determinants of food security and link these to households’ livelihood strategies and assets.

Because the FNSMS aims to assess food security at household level, the analysis is focused on food access (Monthly Per Capita Expenditure, Share of Food Expenditure), food utilization (Food Consumption Score) and coping strategies (Reduced Coping Strategy Index). Other shock-related indicators of transitory food insecurity were also analyzed (experienced difficulties/problems, absenteeism of school age children, child labor, joblessness, in – and out-migration). From the above, the analysis can answer five key questions of food security and vulnerability: How many households are food insecure? Where are the food insecure? Who are the food insecure? Why are they food insecure? And How are they coping?

1. Monthly Per Capita Expenditure (MPCE)
The households are asked about their monthly expenditure (including cash, credit, own production) spent on food and non-food items during the last calendar month before the survey to approximate their income. The monthly per capita expenditure is calculated, and then households are categorized into three groups (poor, near poor, non-poor) based on the latest provincial poverty line (BPS 2008), and the World Bank’s threshold for the near-poor at US$2 PPP (Purchasing Power Parity) which is converted into IDR using the 2008 national PPP exchange rate. The thresholds in IDR are as follows:

- **Poor**: less than IDR 126,746 for rural NTT, 199,006 for urban NTT
  - less than IDR 150,968 for rural, IDR 179,261 for urban of West Kalimantan
  - less than IDR 155,432 for rural, IDR 183,408 for urban of East Java
  - less than IDR 160,527 for rural, IDR 196,229 for urban Central Sulawesi

- **Near poor**: between the above regional poverty line and US2 PPP or IDR 331,846 for all provinces

- **Non-poor**: more than IDR 331,846 for all provinces

2. Share of Food Expenditure
The share of food expenditure of total expenditure is a proxy indicator of household food security. The higher the share of food expenditure, the greater the likelihood that a household has poor food access. The commonly used threshold for the share of food expenditure are used to classify households into poor, average and good food expenditure groups:

- **Poor**: food expenditure is more than 65% of total household expenditure
- **Average**: food expenditure is at 50-65% of total household expenditure
- **Good**: food expenditure is less than 50% of total household expenditure

3. Food Consumption Score (FSC)
The FCS is considered as an adequate proxy indicator of current food security because the FCS captures several elements of food access and food utilization (consumption).

Household food consumption is calculated using a proxy indicator - the Food Consumption Score (FCS). FCS is a composite score based on dietary frequency, food frequency and relative nutrition importance of different food groups.

*Dietary diversity* is the number of individual foods or food groups consumed over the past seven days. *Food frequency* is the number of days (in the past 7 days) that a specific food item has been consumed by a household. Household food consumption is the consumption pattern (*frequency * *diversity*) of households over the past seven days.

**Calculation of FCS and household food consumption groups**

1. Using standard 7-day food frequency data, group all the food items into specific food groups.
2. Sum all the consumption frequencies of food items of the same group, and recode the value of each group above 7 as 7.
3. Multiply the value obtained for each food group by its weight and create new weighted food group scores.
4. Sum the weighed food group scores, thus, creating the food consumption score (FCS). The most diversified and best consumption with maximal FCS at 112 means that all food groups are eaten 7 days a week.
5. Using the appropriate thresholds, recode the variable food consumption score, from a continuous variable to a categorical variable, to calculate the percentage of households of poor, borderline and acceptable food consumption.

*Food Items, Food Group and Weight (FSNMS, Indonesia, 2008)*
<table>
<thead>
<tr>
<th>No</th>
<th>FOOD ITEMS</th>
<th>Food groups</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maize, maize porridge, rice, sorghum, millet pasta, bread and other cereals</td>
<td>Cereals and tuber</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Cassava, potatoes and sweet potatoes</td>
<td>Pulses</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Beans, Peas, groundnuts and cashew nuts</td>
<td>Pulses</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Vegetables and leaves</td>
<td>Vegetables</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Fruits</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Beef, goat, poultry, pork, eggs and fish</td>
<td>Meat and fish</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Milk yogurt and other dairy</td>
<td>Milk</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Sugar and sugar products</td>
<td>Sugar</td>
<td>0.5</td>
</tr>
<tr>
<td>9</td>
<td>Oils, fats and butter</td>
<td>Oil</td>
<td>0.5</td>
</tr>
<tr>
<td>10</td>
<td>Condiments</td>
<td>Condiments</td>
<td>0</td>
</tr>
</tbody>
</table>

**Food Consumption Score thresholds**

The following thresholds of FSC are used to categorize households into three food consumption groups based on the knowledge of consumption behaviors of the majority of Indonesian at present, which are:

<table>
<thead>
<tr>
<th>Food consumption groups</th>
<th>Food Consumption Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0-28</td>
<td>An expected consumption of staple 7 days, vegetables 5-6 days, sugar 3-4 days, oil/fat 1 day a week, while animal proteins are totally absent</td>
</tr>
<tr>
<td>Borderline</td>
<td>28.5 -42</td>
<td>An expected consumption of staple 7 days, vegetables 6-7 days, sugar 3-4 days, oil/fat 3 days, meat/fish/egg/pulses 1-2 days a week, while dairy products are totally absent</td>
</tr>
<tr>
<td>Acceptable</td>
<td>&gt; 42</td>
<td>As defined for the borderline group with more number of days a week eating meat, fish, egg, oil, and complemented by other foods such as pulses, fruits, milk</td>
</tr>
</tbody>
</table>

4. Reduced Coping Strategy Index (RCSI)

When livelihoods are negatively affected by a shock /crisis, households may adopt various mechanisms (strategies) which are not adopted in a normal day-to-day life, to cope with reduced or declining access to food.

Coping Strategy Index (CSI) is often used as a proxy indicator of household food insecurity. CSI is based on a list of behaviors (coping strategies). CSI combines: (i) the frequency of each strategy (how many times each strategy was adopted?); and (ii) their severity (how serious is each strategy?) for households reporting food consumption problems. Higher CSI indicates a worse food security situation and vice versa. CSI is a particularly powerful tool for monitoring the same households or population over time. There are two types: “full CSI” and “reduced CSI”.

In this FSNMS, RCSI is used. RCSI is based on the same short list of 5 coping strategies, and the same severity weights. It is very useful for comparing across regions and countries, or across income/livelihood groups, because it focuses on the same set of behaviors. The maximal RSCI is 240 during the past 30 days (i.e. all 5 strategies are applied every day). There are no universal thresholds for RSCI. Table below is an example of RSCI of this analysis, with RSCI at 27.
5. Estimation of proportion of food insecure households based on composite food security (How many?)

The level of household food security is calculated through two cross-tabulations of the above three indicators.

Firstly, monthly per capita expenditure groups (poor, near-poor, non-poor) are cross-tabulated with food expenditure groups (poor, average, good) to identify three food access groups (poor, average, good). Table below is an example of the first cross-tabulation.

<table>
<thead>
<tr>
<th>Monthly per capita expenditure</th>
<th>Poor</th>
<th>Near-poor</th>
<th>Non-poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor (&gt;65% of total expenditure)</td>
<td>32%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Average (50-65% total expenditure)</td>
<td>16%</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Good (&lt;50% of total expenditure)</td>
<td>34%</td>
<td>6%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Note: Red = Poor food access, Yellow = Average food access, Green = Good food access

Secondly, food consumption groups and food access groups derived from the first cross-tabulation are matched to identify three composite food security groups (food insecure, vulnerable and food secure). Table below is an example of the second cross-tabulation. Food insecure households (29%, in red cells) are those having either poor or average food access combined with either poor or borderline food consumption.

<table>
<thead>
<tr>
<th>Food access</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor (0-28 scores)</td>
<td>9%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Borderline (28.5 – 42 scores)</td>
<td>14%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>Acceptable (&gt; 42 scores)</td>
<td>27%</td>
<td>26%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Note: Red = Food insecure, Yellow = Vulnerable, Green = Food secure

6. Determination of characteristics of food insecure households

Identified food insecure households are matched with their livelihood characteristics such as location, sex, age and education of household head, household size, age dependency ratio, main cash income source, housing, water and sanitation, land and livestock ownership, assets, coping strategies, child education and labor, unemployment, migration, etc. to answer other four questions: Where, Who, Why they are food insecure, and How they are coping.

These analyses allow for determining whether food insecurity is chronic (long-term, persistent) caused by underlying structural and contextual factors which do not change quickly (local climate, soil type, local governance system, public infrastructure – roads, irrigation, land tenure, etc.), or transitory (short term, transient) mostly caused by dynamic factors which can change quickly (natural disasters, displacement, diseases, migration, soaring food prices).
## Main socio-economic characteristics of surveyed households, by province (June-July 2009)

### Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>East Java (E)</th>
<th>West Kalimantan (W)</th>
<th>Central Sulawesi (CS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Rural All</td>
<td>Urban Rural All</td>
<td>Urban Rural All</td>
<td></td>
</tr>
<tr>
<td><strong>Access to water sources (%)</strong></td>
<td>77.8% 30.4% 62.8%</td>
<td>70.4% 40.0% 56.0%</td>
<td>70.4% 40.0% 56.0%</td>
</tr>
<tr>
<td><strong>Housing conditions (%)</strong></td>
<td>20.9% 18.0% 14.2%</td>
<td>24.0% 20.0% 16.6%</td>
<td>21.6% 15.6% 13.3%</td>
</tr>
<tr>
<td><strong>Cooking fuel (%)</strong></td>
<td>44.8% 44.8% 44.8%</td>
<td>44.8% 44.8% 44.8%</td>
<td>44.8% 44.8% 44.8%</td>
</tr>
<tr>
<td><strong>Ownership of assets (%)</strong></td>
<td>44.8% 44.8% 44.8%</td>
<td>44.8% 44.8% 44.8%</td>
<td>44.8% 44.8% 44.8%</td>
</tr>
<tr>
<td><strong>Ownership of land (ha) (%)</strong></td>
<td>70.2% 70.2% 70.2%</td>
<td>70.2% 70.2% 70.2%</td>
<td>70.2% 70.2% 70.2%</td>
</tr>
<tr>
<td><strong>Staple food production in a normal year (%)</strong></td>
<td>8.8% 7.1% 7.0%</td>
<td>8.8% 7.1% 7.0%</td>
<td>8.8% 7.1% 7.0%</td>
</tr>
<tr>
<td><strong>Investment in agriculture (%)</strong></td>
<td>5.0% 4.2% 4.8%</td>
<td>5.0% 4.2% 4.8%</td>
<td>5.0% 4.2% 4.8%</td>
</tr>
</tbody>
</table>

### Details

- **Urban Rural All**
  - 76.8% 30.4% 62.8%
  - 70.4% 40.0% 56.0%
  - 70.4% 40.0% 56.0%

- **Access to water sources (%)**
  - Improved: 77.8%
  - Unimproved: 22.2%

- **Housing conditions (%)**
  - Semi permanent: 18.0%
  - Durable: 5.0%

- **Cooking fuel (%)**
  - Others: 44.8%

- **Ownership of assets (%)**
  - No: 44.8%

- **Ownership of land (ha) (%)**
  - No: 70.2%

- **Staple food production in a normal year (%)**
  - No: 8.8%

- **Investment in agriculture (%)**
  - Yes: 5.0%
### ANNEX 3
Main socio-economic characteristics of surveyed households, by food security group (June-July 2009)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Foodsecure</th>
<th>Vulnerable</th>
<th>Total</th>
<th>Rural</th>
<th>All</th>
<th>Rural</th>
<th>All</th>
<th>Rural</th>
<th>All</th>
<th>Urban</th>
<th>All</th>
<th>Urban</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households (HHs)</td>
<td>42</td>
<td>99</td>
<td>141</td>
<td>143</td>
<td>160</td>
<td>300</td>
<td>315</td>
<td>241</td>
<td>556</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Access to water sources (%)</td>
<td>Improved</td>
<td>5.2%</td>
<td>15.3%</td>
<td>9.7%</td>
<td>29.3%</td>
<td>31.0%</td>
<td>30.1%</td>
<td>65.5%</td>
<td>53.7%</td>
<td>60.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unimproved</td>
<td>17.4%</td>
<td>26.2%</td>
<td>22.8%</td>
<td>20.6%</td>
<td>35.5%</td>
<td>30.8%</td>
<td>56.1%</td>
<td>40.3%</td>
<td>64.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Housing conditions (%)</td>
<td>Durable</td>
<td>3.7%</td>
<td>9.1%</td>
<td>5.9%</td>
<td>25.3%</td>
<td>27.3%</td>
<td>26.1%</td>
<td>71.0%</td>
<td>63.6%</td>
<td>68.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi permanent</td>
<td>10.8%</td>
<td>19.2%</td>
<td>15.1%</td>
<td>30.2%</td>
<td>26.0%</td>
<td>28.1%</td>
<td>59.0%</td>
<td>54.8%</td>
<td>56.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-durable</td>
<td>15.0%</td>
<td>29.6%</td>
<td>25.9%</td>
<td>33.3%</td>
<td>40.8%</td>
<td>37.9%</td>
<td>51.7%</td>
<td>29.6%</td>
<td>38.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>roof</em></td>
<td>Yes</td>
<td>14.1%</td>
<td>31.9%</td>
<td>19.3%</td>
<td>31.5%</td>
<td>35.4%</td>
<td>33.9%</td>
<td>53.8%</td>
<td>41.2%</td>
<td>47.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0.9%</td>
<td>4.8%</td>
<td>1.7%</td>
<td>25.1%</td>
<td>8.1%</td>
<td>21.5%</td>
<td>74.0%</td>
<td>87.1%</td>
<td>76.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cooking fuel (%)</td>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>41.9%</td>
<td>46.9%</td>
<td>45.7%</td>
<td>35.5%</td>
<td>35.7%</td>
<td>35.7%</td>
<td>22.6%</td>
<td>17.4%</td>
<td>18.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ownership of assets (%)</td>
<td>1-2</td>
<td>13.8%</td>
<td>20.3%</td>
<td>17.3%</td>
<td>32.0%</td>
<td>38.2%</td>
<td>35.4%</td>
<td>54.2%</td>
<td>47.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>1.4%</td>
<td>4.9%</td>
<td>2.7%</td>
<td>25.7%</td>
<td>22.7%</td>
<td>24.5%</td>
<td>72.9%</td>
<td>72.4%</td>
<td>72.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ownership of land (yes/no)</td>
<td>Yes <em>(UU)</em></td>
<td>12.0%</td>
<td>20.0%</td>
<td>17.3%</td>
<td>27.5%</td>
<td>33.3%</td>
<td>31.4%</td>
<td>60.5%</td>
<td>46.7%</td>
<td>51.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>0.57 (0.6)</td>
<td>1.02 (1.0)</td>
<td>0.92 (1.0)</td>
<td>0.52 (0.7)</td>
<td>1.16 (1.3)</td>
<td>0.97 (1.2)</td>
<td>1.03 (1.4)</td>
<td>1.21 (1.2)</td>
<td>1.31 (1.3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHs own 0.5 ha (%) <em>(UU)</em></td>
<td>9.5%</td>
<td>20.2%</td>
<td>15.5%</td>
<td>39.6%</td>
<td>30.3%</td>
<td>34.5%</td>
<td>50.5%</td>
<td>49.5%</td>
<td>50.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHs own &gt; 0.5 ha (%) <em>(UU)</em></td>
<td>13.8%</td>
<td>19.9%</td>
<td>18.2%</td>
<td>17.4%</td>
<td>34.3%</td>
<td>29.8%</td>
<td>68.8%</td>
<td>45.2%</td>
<td>50.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>6.0%</td>
<td>19.1%</td>
<td>9.1%</td>
<td>29.8%</td>
<td>26.6%</td>
<td>28.7%</td>
<td>64.7%</td>
<td>54.3%</td>
<td>62.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Staple food production in a normal year (%)</td>
<td>Yes *(produce staple food) <em>(AA)</em></td>
<td>11.2%</td>
<td>20.5%</td>
<td>17.5%</td>
<td>35.6%</td>
<td>34.4%</td>
<td>34.0%</td>
<td>55.2%</td>
<td>45.1%</td>
<td>48.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>143.1</td>
<td>135.1</td>
<td>134.6</td>
<td>206.4</td>
<td>166.2</td>
<td>178.1</td>
<td>200.2</td>
<td>259.0</td>
<td>238.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>UU</em> <em>(RR)</em> <em>(AA)</em></td>
<td>(126.9)</td>
<td>(230.7)</td>
<td>(214.6)</td>
<td>(306.1)</td>
<td>(194.1)</td>
<td>(232.5)</td>
<td>(782.6)</td>
<td>(360.1)</td>
<td>(541.9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Level of the 2009 staple requirement met by accumulated harvested crops (mean %) <em>(UU)</em> <em>(RR)</em> <em>(AA)</em></td>
<td>9.1%</td>
<td>29.4%</td>
<td>19.4%</td>
<td>30.3%</td>
<td>35.3%</td>
<td>32.8%</td>
<td>60.6%</td>
<td>35.3%</td>
<td>47.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* food security status is significantly different between 2 (or 3) groups in urban (U), rural (R) and all (A)