

Food and Nutritional Consumption Survey: Women and Preschool-  
Age Children in Cambodia

*FACTS & FIGURES*

*2015*

INVESTIGATION V:

Enhancing food security and household nutrition vulnerability of women and children focus on  
nutrient dense commonly consumed fish from capture fish and aquaculture in Cambodia

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## **OVERVIEW**

This report is part of the implementation under the Investigation 5 “Enhancing food security and household nutrition vulnerability of women and children focus on nutrient dense commonly consumed fish from capture fish and aquaculture in Cambodia” under the project Titled: Improving Food Security, Household Nutrition, and Trade through Sustainable Aquaculture and Aquatic Resource Management in Cambodia and Vietnam.

The primary purpose of this activity is to identify the commonly consumed fish species and Other Aquatic Animals (OAAs) among the sample women and preschool children. The secondary purpose is to evaluate the current food consumption situation, energy, and nutrient intakes of sample women and preschool children and the relative contribution made by fish and OAAs and products to total nutrient intake of studied subjects.

## **STUDY DESIGN, SCOPE AND COVERAGE**

Stung Treng province (Upstream Mekong); Prey Veng province (Downstream Mekong); and Kampong Thom province (Tonle Sap Area) were selected for study sites. The data collection was conducted in rainy season from 2 to 26 June, 2014. The target of the study subjects are women and preschool-age children (aged 6 months to 5 years old). Three hundred (300) eligible women and 343 eligible preschoolers were selected by using simple randomized sampling from three provinces.

Dietary intake was conducted through face-to-face interview by using a single 24-hour food recall to estimate the amount of food that has been eaten in the past 24 hours. Food models were used to identify food items were eaten by the subjects. All food and beverage consumed were recorded using standard household measurement and Electronic Scale (precision to 0.1g). The names of local dishes consumed were also recorded. The amount of each food item consumed was estimated from the real food models. Mothers were asked to show the amount of food consumed by her child, which was then weighted. All food item consumption of women and preschoolers were converted to weight in grams and the nutrient content of the foods consumed were computed by using the ASEAN Food Composition Table (ASEANFCT, 2000).

Included nutrients for evaluation: energy; macronutrients (Protein, Carbohydrate and fats); and key micronutrients such as Iron, Zinc, Calcium, and Vitamin A. The nutrient intake of women and preschool children was then compared to the Recommended Dietary Allowances harmonization in Southeast Asia, 2008 (Barba, 2008) to determine the level of nutritional adequacy of the food intake to estimate the amount of food that has been eaten. Microsoft Excel 2013 and SPSS Statistics Version 20.0 were used for data entry and analysis. Data coding, cleaning and cross-checking were conducted. Descriptive statistic was used.

## **SURVEY COMPONENTS**

Part 1. Dietary Facts and Figures

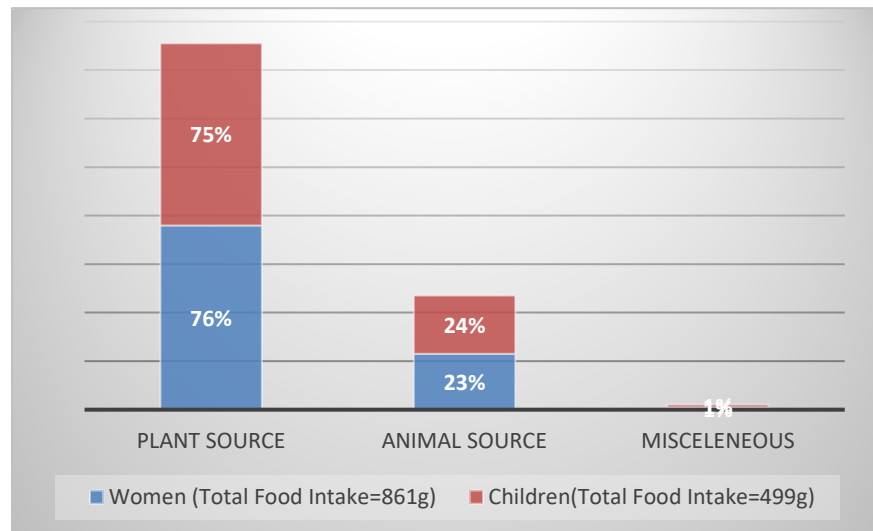
Part 2. Energy and Nutrient Facts and Figures

Part 3. The Role of Fish in the Women and Preschool-Age Children’s Nutritional Security Facts and Figures

## PART 1. DIETARY FACTS AND FIGURES

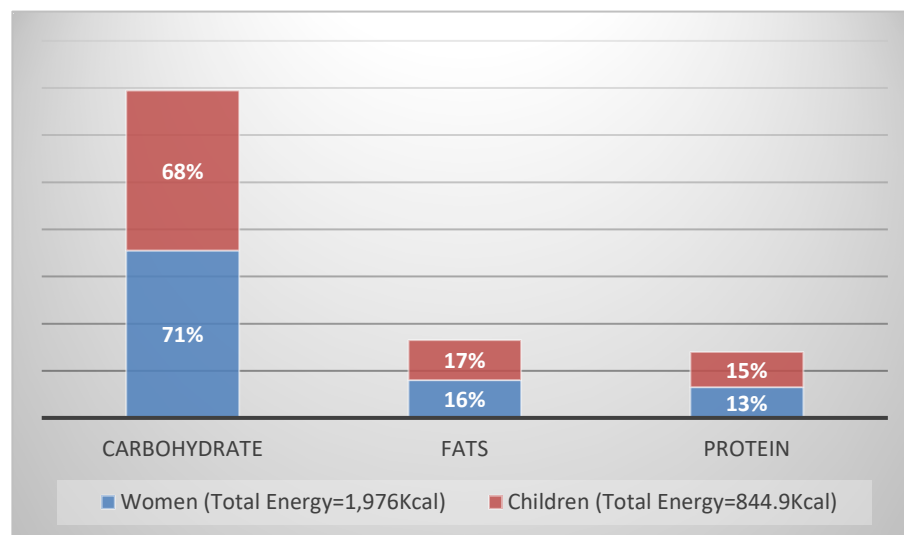
*What do the nutritionally vulnerable groups of the population eat? Do they eat enough?*

- ✚ Percent contribution of food sources of mean one day capita food consumption: women and preschool-age children



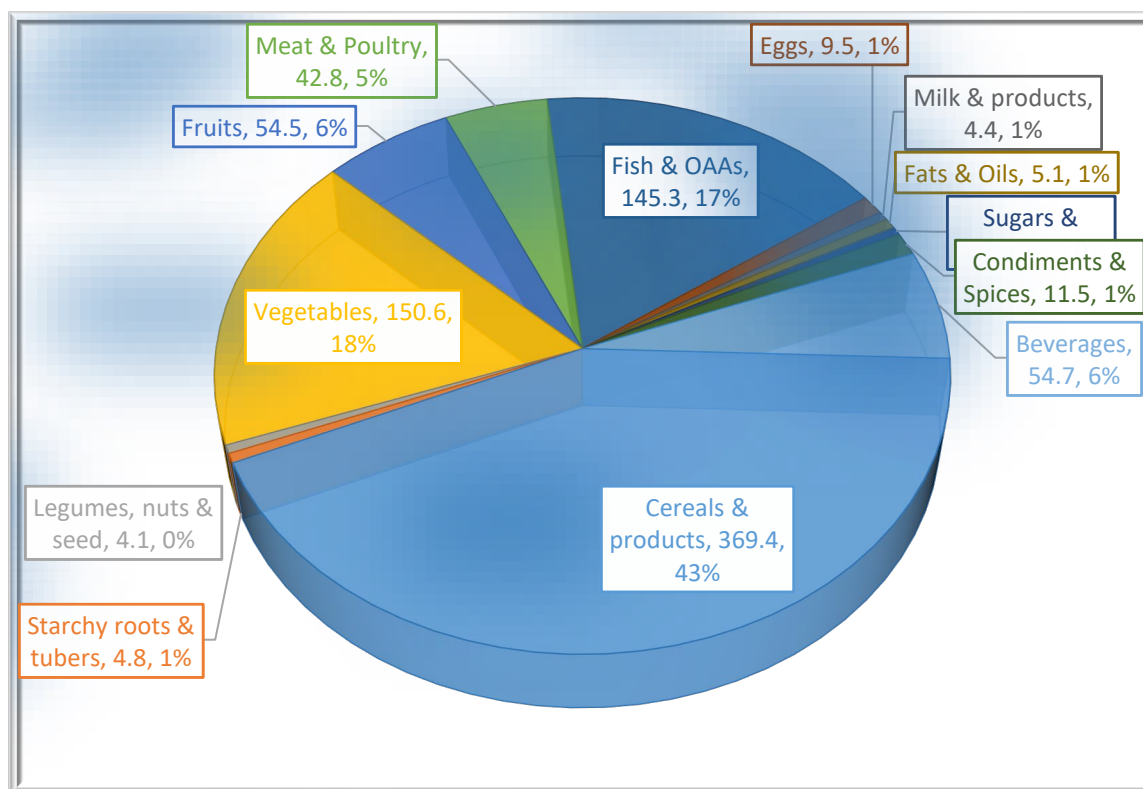
- Majority of foods that made up the women diet comes from plants was at 76%, while 23% comes from animal source, and 1% comes from food group such as condiments and spices.
- Diet of pre-school children shares from plant source accounting for 75%, animal source for 24%, and 1% coming from condiments and spices.

- ✚ Proportion contribution of carbohydrate, fats and protein to total dietary energy: women and children



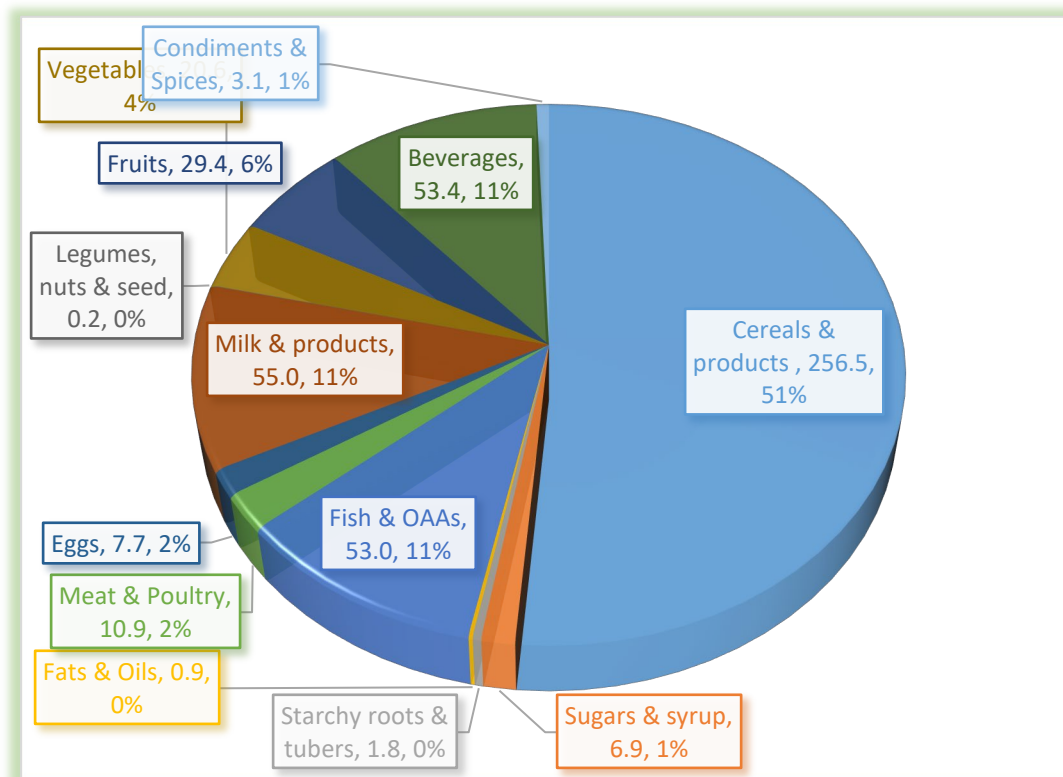
- Women diet has a total energy of 1976 Kcal, the largest amount of energy comes from carbohydrates up to at 71 %, with desirable contribution from proteins at 13% and low from fats and oils (16%).
- Preschool children diet has a total energy of 844.9 Kcal, the largest amount of energy comes from carbohydrates up to at 68 %, with desirable contribution from proteins at 15% and very low from fats and oils (17%).

- Percent Distribution of mean one-day per capita food consumption of women by particular food group.



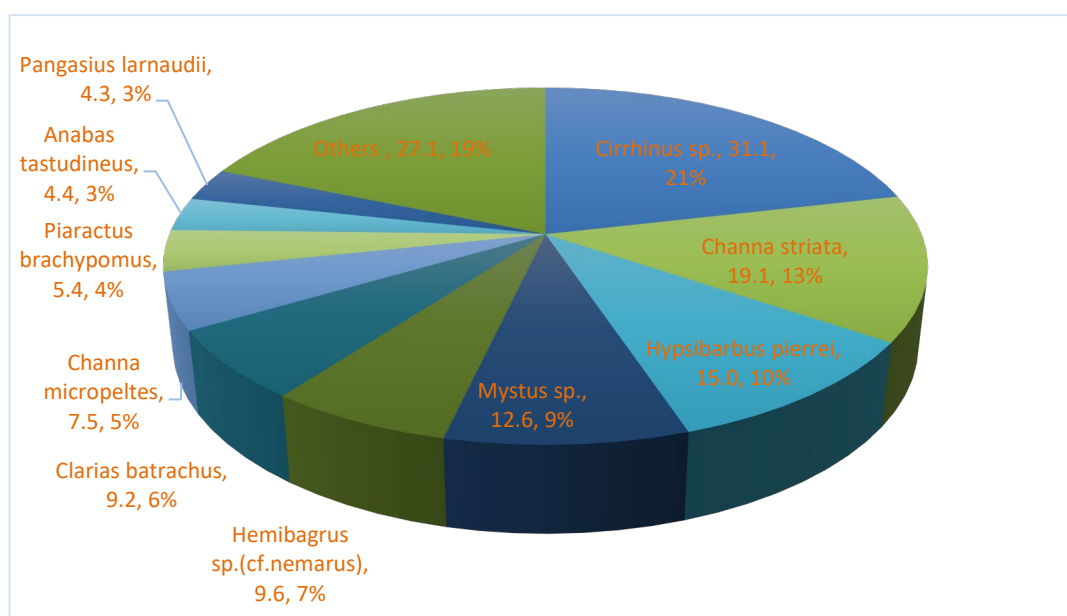
- The typical one-day food intake of women are basically rice, vegetable and fish contributing 369.4g(43%), 150.6g (18%) and 145.3g 17%, respectively, of the one day total food intake of 861g.
- The women's total intake of fish, OAAs, and fish products 143.3g per capita per day, and 42.8g for meat and poultry which contributes 5% to the total daily food intake.

- Percent distribution of mean one-day per capita food consumption of preschool-age children by food group



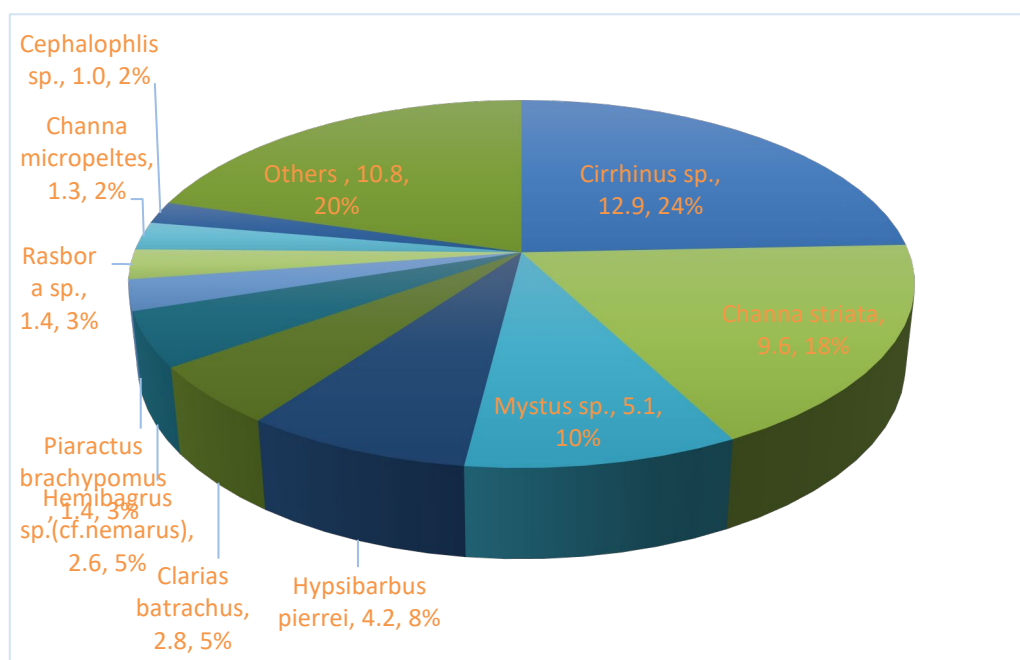
- The typical one-day food intake of preschoolers are basically rice, milk and milk products, and fish, OAAs and fish products contributing 256g (51%), 55g (11%) and 53g (11%), respectively, of the one day total food intake of 499g.
- The preschoolers' total consumption of fish, Other Aquatic Animals, and fish products is 53g per capita per day, and 10.9g for meat and poultry which contributes 2% to the total daily food intake.

- First 10 commonly consumed fish and percent distribution of the women's mean one day per capita fish consumption



- Women consume 43 of fish and OAAs species with an average consumption of women consume 145.3g per capita per day.
- Trey Riel (*Cirrhinus sp.*) is the women's largest consumption accounts for 31g (21%) of total fish intake per day. Trey Ros (*Channa striata*) and Trey Chhpin (*Hypsibarbus pierrei*) ranked 2<sup>nd</sup> and 3<sup>rd</sup> with 19.14g (13%) and 15g (10.1%) to the total daily fish intake, respectively.

- First 10 commonly consumed fish and percent distribution of the preschool-age children's mean one day per capita fish consumption



- Preschooler consumes 38 of fish and OAAs species with an average consumption is 53g per capita per day.
- Trey Riel (*Cirrhinus sp.*) is the preschooler's largest consumption amounts at 12.89g (24.34%) of total daily fish intake. Trey Ros (*Channa striata*) and Trey Kanhchus (*Mystus sp.*) ranked 2<sup>nd</sup> and 3<sup>rd</sup> with 9.6g (17.8%) and 5.09g (9.6%) to the total daily fish intake, respectively.

## PART 2. ENERGY AND NUTRIENT FACTS AND FIGURES

✚ Mean one-day and percent adequacy of energy and nutrient intake of the women

Energy and Nutrient	All Women	Stung Treng	Kampong Thom	Prey Veng
Energy(Kcal)	1976.0	2032.1	1813.3	2082.6
Meeting 100% of Energy Intake (%)	50.0	52.0	42.0	56.0
Protein(g)	65.7	67.4	61.9	67.8
Meeting 80% of Protein Intake (%)	71.0	75.0	66.0	72.0
Iron(mg)	13.0	11.7	13.9	13.2
Meeting 80% of Iron Intake (%)	10.7	13.0	5.0	14.0
Zinc(mg)	3.8	3.1	4.2	4.1
Meeting 80% of Zinc Intake (%)	36.3	28.0	46.0	35.0
Calcium(g)	545.2	478.4	537.7	619.3
Meeting 80% of Calcium Intake (%)	24	21.0	26.0	24.0
Vitamin A(mcg RE)	458.4	531.4	438.8	404.9
Meeting 80% of Vitim A Intake (%)	28	24.0	29.0	31.0
Carbohydrate(g)	355.7	346.7	349.0	371.4
Fats(g)	35.5	33.5	28.9	44.0

- The women's average one-day intake of dietary energy is 1976 kilocalories.
- An average energy intake among three provinces ranged from 1813.3 to 2082.6 kilocalories/women/day.
- An average daily nutrients intakes for protein ranged from 61.9 to 67.8 g, carbohydrate from 346.7 to 271.4g, fats from 28.9 to 44g, iron ranged from 11.7 to 13.9mg zinc from 3.1 to 4.1 mg, calcium from 478.4 to 619.4g, and vitamin A ranged from 404.9 to 531.4 mcg RE/women/day.
- Across the provinces, only protein among energy and nutrients of women meets the highest the recommended daily intake.

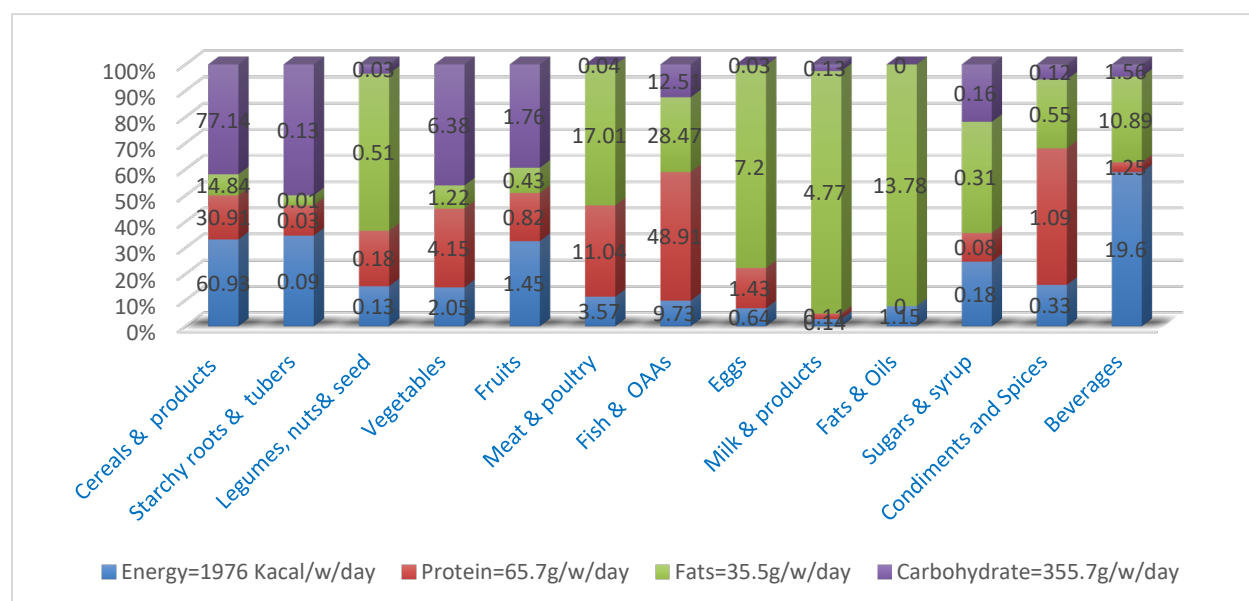
✚ Mean one-day and percent adequacy of energy and nutrient intake of preschoolers

<b>Energy and Nutrient</b>	<b>All Children</b>	<b>Stung Treng</b>	<b>Kampong Thom</b>	<b>Prey Veng</b>
<i>Energy(Kcal)</i>	844.94	775.94	830.54	922.90
<i>Meeting 100% of Energy Intake (%)</i>	29.58	22.22	28.57	37.38
<i>Protein(g)</i>	28.72	26.72	26.36	32.90
<i>Meeting 80% of Protein Intake (%)</i>	53.37	46.66	48.57	61.68
<i>Iron(mg)</i>	5.09	4.83	4.75	5.67
<i>Meeting 80% of Iron Intake (%)</i>	24.11	15.28	22.85	32.71
<i>Zinc(mg)</i>	1.68	1.26	1.60	2.14
<i>Meeting 80% of Zinc Intake (%)</i>	8.03	2.85	5.71	14.95
<i>Calcium(g)</i>	277.77	207.56	287.95	332.73
<i>Meeting 80% of Calcium Intake (%)</i>	23.79	15.23	18.09	27.10
<i>Vitamin A(mcg RE)</i>	241.03	233.41	268.03	221.59
<i>Meeting 80% of Vitim A Intake (%)</i>	18.64	13.33	22.85	18.69
<i>Carbohydrate(g)</i>	133.72	119.51	127.52	152.95
<i>Fats(g)</i>	15.10	13.08	13.13	18.90

- The women's average one-day intake of dietary energy is 1976 kilocalories.
- An average energy intake among three provinces ranged from 775.94 to 922.9kilocalories /preschooler/day.
- An average daily nutrients intakes for protein ranged from 26.7 to 32.9 g, carbohydrate from 119.5 to 152.9g, fats from 13.08 to18.9g, iron ranged from 4.75 to 5.56mg, zinc from 1.26 to 2.14mg, calcium from 207.5 to 332.7g and vitamin A from 221.5 to 268mcg/preschooler/day.
- Across the provinces, only protein among energy and nutrients of preschoolers meets the highest the recommended daily intake.

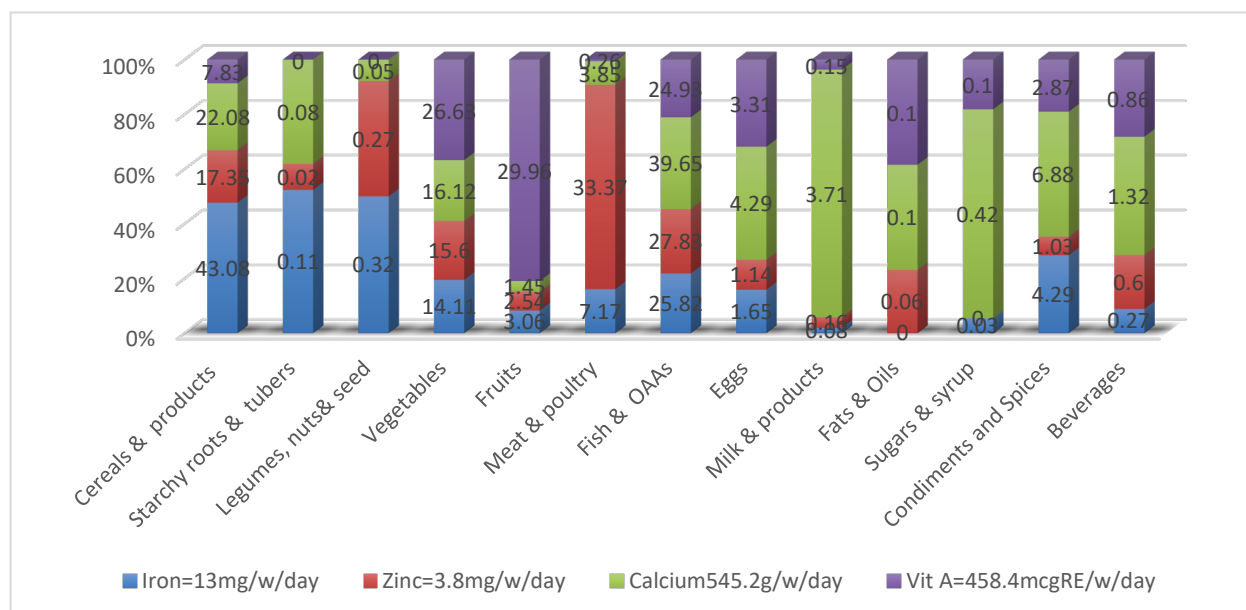


Percentage contribution of particular food groups to the women total energy and macronutrient intakes



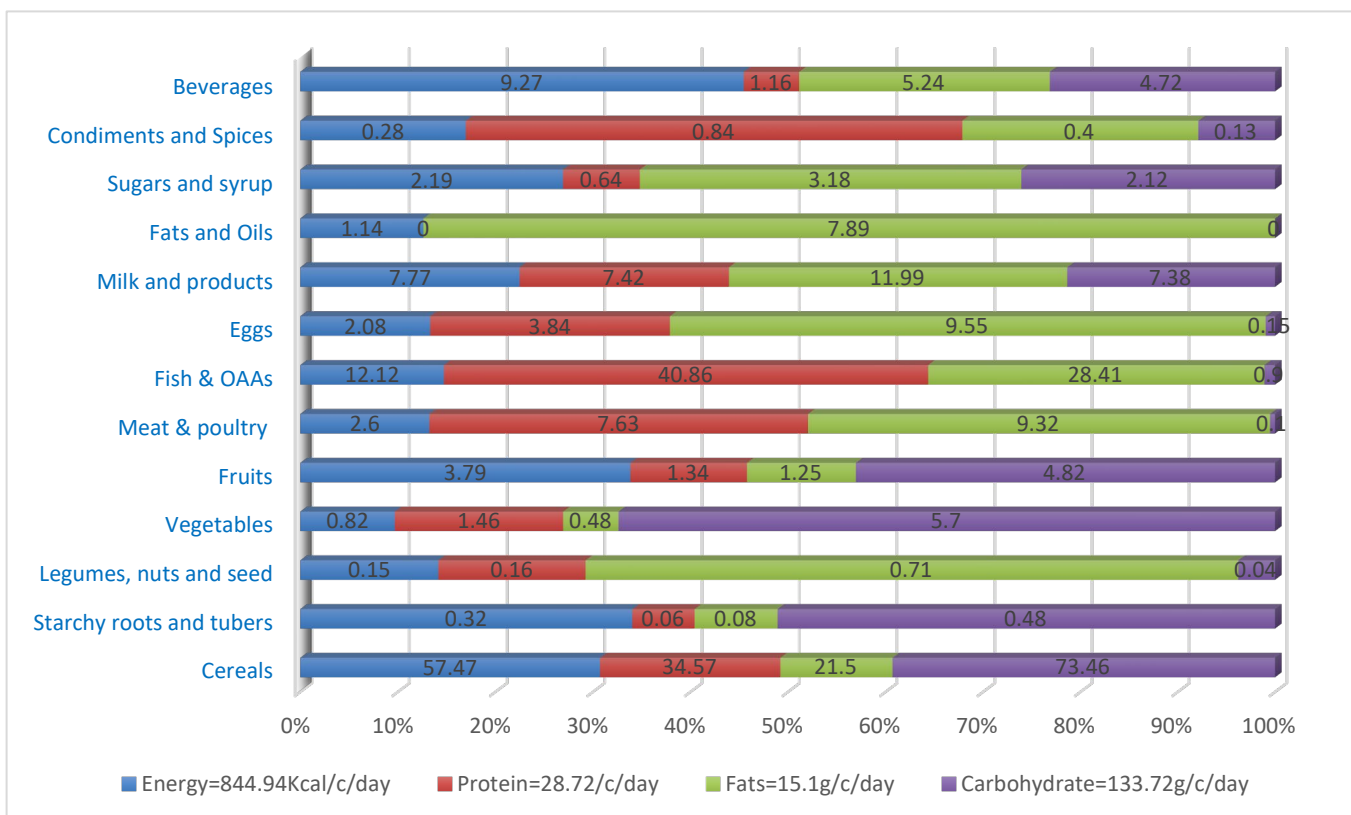
- Cereal and cereal products are top energy contributors to the women's diet contributing at 60.9 % and carbohydrates more than 77% to the total daily dietary energy intakes.
- Fish and fish products are the major contributors in the women's protein intake at 48.9% and fats at 28.4 % to these total daily nutrient intakes.
- Meat and meat products follows fish and fish products in their contribution to the women's total daily protein and fats intake with 11.04% and 17.01%, respectively.
- Vegetables are the second contributor of carbohydrate at 12.5% and beverage is the second largest contributor to the women's total energy intake.

Percentage contribution of particular food groups to the women total micronutrient intakes



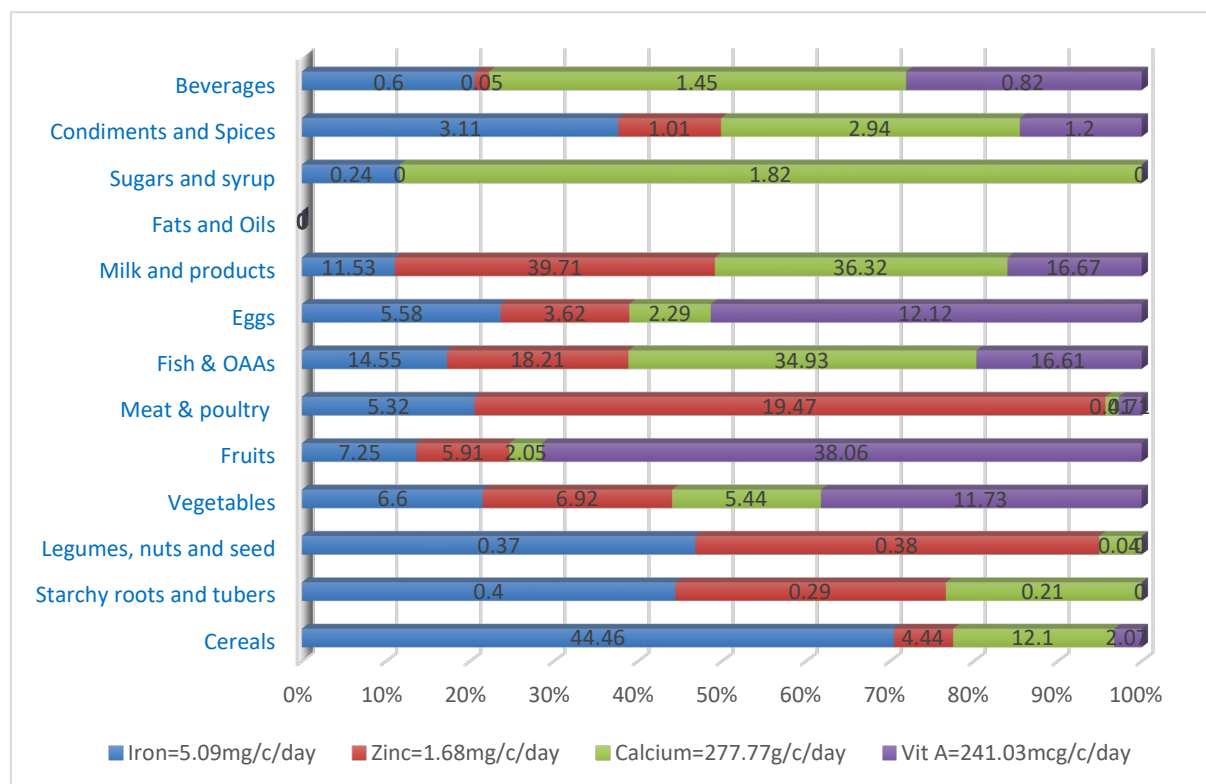
- Fish and fish products are the major contributors in the women's iron intake at 25.8, zinc at 27.8%, calcium at 39.65% and 24.9% to these total daily nutrient intake.
- Meat and meat products follows fish and fish products in their contribution to the women's total daily micronutrient intake with iron at 7.17%, Zinc at 33.37%, Calcium 3.85% and very low Vitamin A at 0.76%.
- Cereal and cereal products are also the second contributor to the women's iron at 43%, calcium 22% and Vitamin A at 7.8% to these total daily nutrient intakes.
- Vegetables are the major contributors of the women's Iron with 14.11%, Zinc with 15.6%, and Calcium with 16.12% and Vitamin A with 26.68% to these total daily nutrient intakes.
- Fruits are the top contractor to the women's total Vitamin A intake with 29.96%.

Percentage contribution of particular food groups to the preschool-age children's total energy and macronutrients intake



- Cereal and cereal products are the largest contributors to the preschool children's diet to energy, and carbohydrates at about 57.4%, 73.4%, respectively.
- Cereal and cereal products are also the second contributor to the preschool children's protein intake, fats at about 34.5% and 21.5%, respectively.
- Fish and fish products are top contributors to the preschool children's protein and fats with 40.8% and 28.4%, respectively.

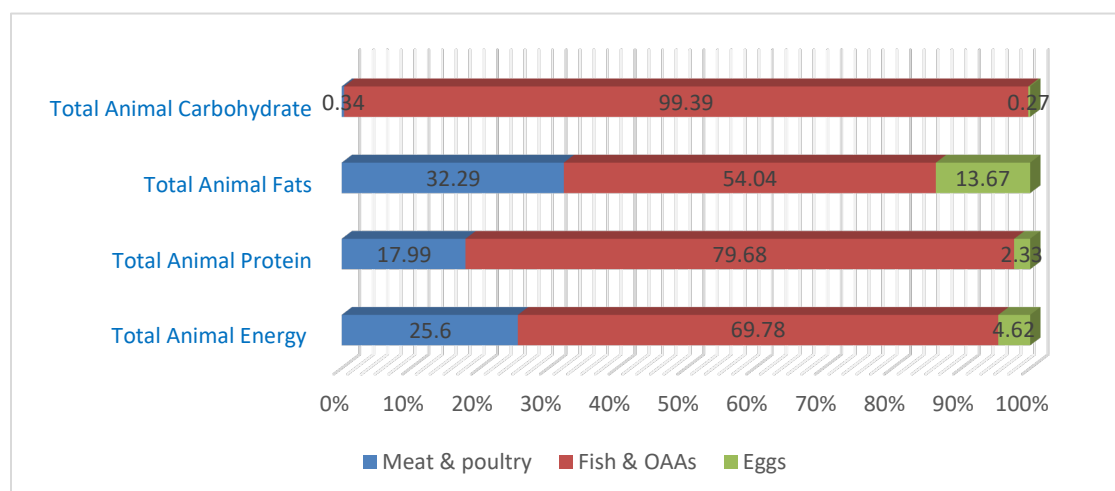
Percentage contribution of particular food groups to the preschool-age children's total micronutrients intake



- Cereal and cereal products are the largest contributors to the preschool children's iron accounting at about 44.4%.
- Milk and products are the largest contributor to the preschool children's zinc and calcium at around 39.7% and 36.3%, respectively.
- Fruits and vegetables are the major contributor to the preschool children's total vitamin A intake with at 11.73%.
- Other food groups such as starchy roots and tubers; legumes, nuts and seed; sugars and syrup; beverages; condiments and spices are less contributors to the preschool children's micronutrient intake.

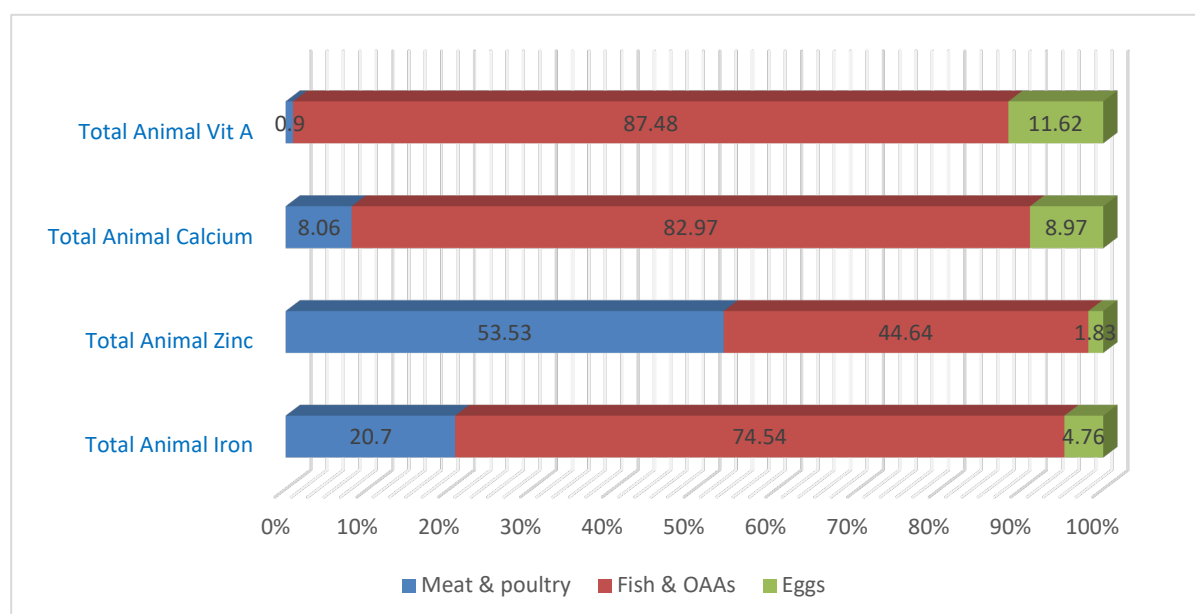
### PART 3. THE ROLE OF FISH IN THE WOMEN AND PRESCHOOL-AGE CHILDREN'S NUTRITIONAL SECURITY FACTS AND FIGURES

Percentage contribution of fish to the women's total animal energy and macronutrient intakes



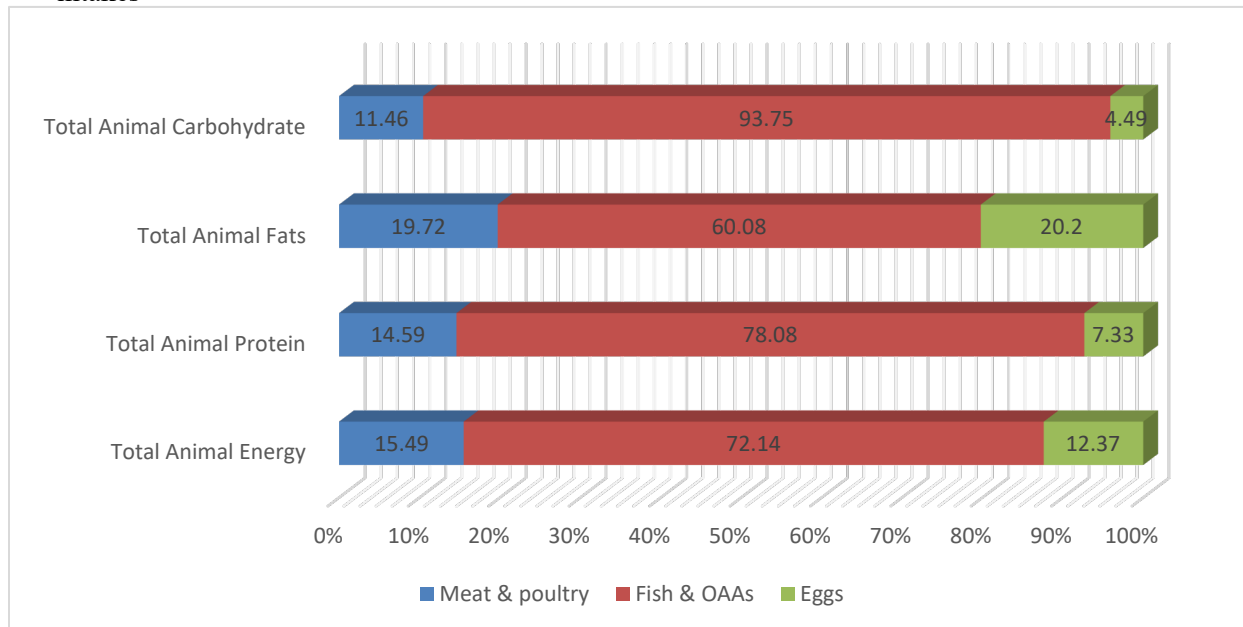
- Fish, OAAs and fish products are the major contributors to the women's total animal energy intake accounting for 69.78%.
- Fish, OAAs and fish products provides more than three-fourths (80%) to the women's total animal protein intake.
- Meat and poultry, and eggs contributed less than one-fourth to the women's total animal protein intake accounting about 18 % and 2 %, respectively.
- Fish, OAAs and products are also the major contributor to the women's total fats and carbohydrate intake accounting for 54.04% and 99%, respectively.

Percentage contribution of fish to the women's total animal micronutrient intakes



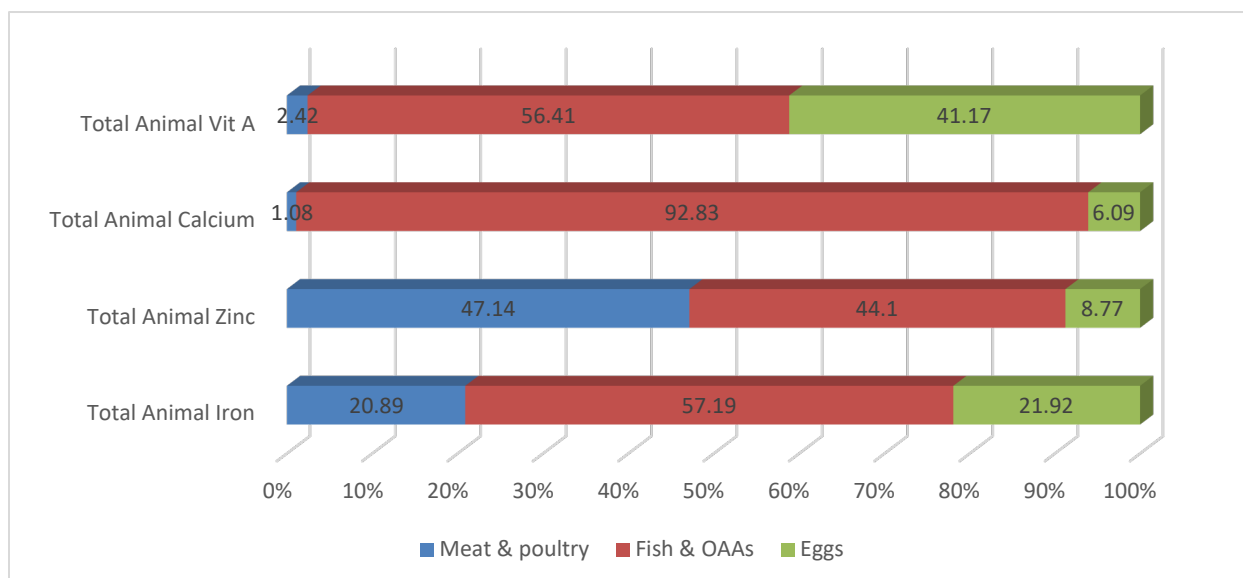
- Fish, OAAs and products are also the major contributor to the women's total iron intake, zinc, calcium, and vitamin A contributing at 74.5%, 44.6%, 82.97% and 87.48%, respectively.
- Meat and poultry are the largest contributor to the women's zinc intake, contributing at 53.53%, while the contribution to the women's iron, calcium, and vitamin A are only at 20.7%, 8.06% and 0.9%, respectively.

Percentage contribution of fish to the preschool-age children's total animal energy and macronutrient intakes



- Again fish, OAAs and products are the largest contributor to the preschool-age children's total animal energy accounting at 72.14%.
- Fish, OAAs and products provides up to 80% to the preschool-age children's total animal protein intake, while meat, and poultry; and eggs contributes to the preschool-age children's total animal protein intake accounting for only about 14.5 and 7.3%, respectively.
- Fish, OAAs and products are also the major contributor to the preschool-age children's fats, carbohydrate amounting at 60%, 93.75%, respectively.

Percentage contribution of fish to the preschool-age children's total animal micronutrient intakes



- Fish, OAAs and products are also the major contributor to the preschool-age children's iron, zinc, calcium, and vitamin A contributing for 57.2%, 44.1%, 92.83% and 56.41%, respectively.
- Meat and poultry are the largest contributor to the preschool-age children's zinc intake, contributing at 47.14%, while the contribution to the preschool-age children's iron, calcium, and vitamin A are only at 20.89%, 1.08% and 2.42%, respectively.