



# Institute of Nutrition, Mahidol University

## SCN Working Group on Micronutrients: Information Sharing Template for 2005 and Earlier Activities

**Table 1: Demographic Information**

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<u>Department/Section</u>	<i>Community Nutrition</i>

**Table 2: Measurement, assessment, monitoring and reporting micronutrient deficiencies:**

<u>Geographic area(s) covered by this table (community, province, country, region)</u>	<i>Specific areas/group – district, factories</i>
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<u>Activities</u>	Micronutrients													
	Iodine	Iron	Folate	Zinc	Calcium	Vit A	Vit B-12	Vit C	Vit D	Vit B-1	Vit B-2	Vit B-3	Vit B-6	Vit K

<b><i>Prevalence Assessment</i></b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
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1. Random sample of school children in 10 rural NE schools typical of rural poor area (baseline of efficacy --multiple fortification study). (publication: AJCN, August, 2005)2. Random sample of reproductive age women in 4 factories (n=201), and baseline screening of women in 8 factories (n=1800) screened for efficacy study. (mentioned in publication – AJCN, December 2005). The study was conducted during 2002-2003.

<b><i>Monitoring and Evaluation</i></b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
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1. Monitoring of iodized salt quality is being reviewed. Coverage of HH using iodized salt and urinary iodine excretion has been ascertained in the cyclical survey conducted in 15 provinces/round (year). School goiter palpation by school teachers continues and the current

prevalence is <2 %.

2. Monitoring of urinary iodine excretion of pregnant women for the first ANC visit. Currently, same cutoff as that used for school children is used, with consideration to revise as per recommendation of the recent WHO expert consultation. A study on proper indicators and UIE cutoff has been proposed, but has not yet finalized.

**Table 3: Food Fortification:**

Geographic area(s) covered by this table (community, province, country, region)	<i>community</i>														
Commodities	Micronutrients														
	Iodine	Iron	Folate	Zinc	Calcium	Vit A	Vit B-12	Vit C	Vit D	Vit B-1	Vit B-2	Vit B-3	Vit B-6	Vit K	Vit E
<i>Wheat</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												
<i>Cooking Oil</i>						<input checked="" type="checkbox"/>									
<i>Complimentary food</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>					
<b>Rice-based product development</b>															
<i>Soy Sauce</i>		<input checked="" type="checkbox"/>													
<i>Fish Sauce</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
<b>Effect of spices on iron absorption from iron-fortified fish sauce in typical Thai meal</b>															
<i>Other</i>															
<p>1. Macro-nutrients and multiple micronutrient fortified biscuits for HIV patients treated with ARV and impacts on body composition, micronutrient status and morbidity. Project is expected to start in March 2006.</p> <p>2. Iron bioavailability, using stable isotope, from iron fortified fish sauce among women having non-symptomatic hemoglobinopathy (Hb trait). Project to be started in April.</p> <p>3. Multiple fortified biscuits and deworming for school children in Vietnam and adolescents in Thailand (proposal submitted): impacts on micronutrient status, cognition, morbidity, and growth. (Pending on funding)</p>															
<b>Provision of Fortification Supplies</b>		<input checked="" type="checkbox"/>													
<b>Assists in procurement of ferrous sulphate and citric acid to Cambodia</b>															

## Other Information

- Complementary food: A study was conducted on fortifying micronutrients as indicated above and product is well accepted. However, the level of NaFeEDTA used is higher than that allowed for infant foods. Thus, improved product development continues and with a plan to test bioavailability of the new product. In addition, a low cost calcium fortificant is being tested.
- Fish sauce (FE + I): It has been adopted by a local factory in Cambodia, with training and supervision by a consultant from INMU. A field efficacy/effectiveness trial was also conducted with financial and technical support from GTZ. Preliminary data showed positive results. In Thailand, this product is not yet launched because commercial benefit is still uncertain.
- Fortification of soy sauce: ferrous sulphate, NaFeEDTA, lactate, ammonium citrate of various grades of soy sauce (4 grades). Citric acid or Na-citrate is added to improve product stability in some formula. In vitro dialyzability is also tested.
- Product development of iron and folate fortification in all-purpose wheat flour. Loss during cooking and distribution is being studied.
- Efficacy of electrolytic and H-reduced elemental iron vs ferrous sulphate fortified in bakery products was tested among reproductive age women (factory workers).
- Vegetable oil: Vitamin A fortification (palmitate) has been developed and vitamin A loss in oil with different degrees of unsaturation is studied, packaged in different packaging materials and storage conditions.
- Multiple fortified biscuits to patients with HIV who are currently on ARV treatment on body composition and micronutrient status, and morbidity. Patients will be given nutrition counseling and close follow up on compliance and improvement in all parameters will be ascertained.
- Multiple fortified biscuits, deworming and their interaction on micronutrient status, morbidity and cognition among school children and adolescents. (Pending on funding – submitted to Nestle.

### **Table 4: Supplementation:**

<u>Geographic area(s) covered by this table (community, province, country, region)</u>	<b><i>National program/project-base</i></b>
<u>Supporting Agencies (if relevant)</u>	<b><i>MOPH with technical consultation from INMU</i></b>

	Micronutrients														
Activities	Iodine	Iron	Folate	Zinc	Calcium	Vit A	Vit B-12	Vit C	Vit D	Vit B-1	Vit B-2	Vit B-3	Vit B-6	Vit K	Vit E
<b>Prevention Program</b>		<input checked="" type="checkbox"/>													
<p>1. Iron supplementation program for pregnant women: 60 mg iron and 1 tablet of multi-vitamin, beginning from first ANC, to 4-6 weeks postpartum. Iron supplementation for infants has been considered, however, it is not yet adopted as a policy.</p> <p>2. Weekly iron supplementation for school children has been adopted as a policy and promoted in health promoting schools. It is also encouraged in school nutrition projects that INMU is involved as a technical consultant, including border patrol police schools which are in remote areas.</p>															
Treatment Orientation															
Supplements Primary Distribution															
Through Public Channels		<input checked="" type="checkbox"/>													
Through Private Channels		<input checked="" type="checkbox"/>													
Community council and women's group (limited to research project)															
Supplementation Targeted Groups															
Pregnant women		<input checked="" type="checkbox"/>													
Iron and multi-vitamin for pregnant women from first ANC till 4-6 weeks postpartum.															
Children in school		<input checked="" type="checkbox"/>													
Weekly iron supplementation of school children (both boys and girls) in health promoting schools.															

**Table 5: Dietary Diversity to Improve Micronutrient Nutrition:**

Activities	Micronutrients														
	Iodine	Iron	Folate	Zinc	Calcium	Vit A	Vit B-12	Vit C	Vit D	Vit B-1	Vit B-2	Vit B-3	Vit B-6	Vit K	Vit E
<b><i>Dietary Policy and Advocacy</i></b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
Nutrition for Optimal functions: Advocacy for 'balanced diets' (focused on micronutrients) for children and their mothers, aimed at promoting health and cognitive development															
<b><i>Agricultural Initiatives</i></b>															
<b><i>Crop breeding</i></b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											
Nutrition aspect of Thai rice, focusing on iron, zinc and antioxidants; glycemic index															
<b><i>Other areas using diet improvement to improve micronutrient nutrition.</i></b>		<input checked="" type="checkbox"/>													
1. Inhibitory effects of chili and turmeric on bioavailability of iron from typical Thai diets added with iron fortified fish sauce (see above), using stable isotope.															