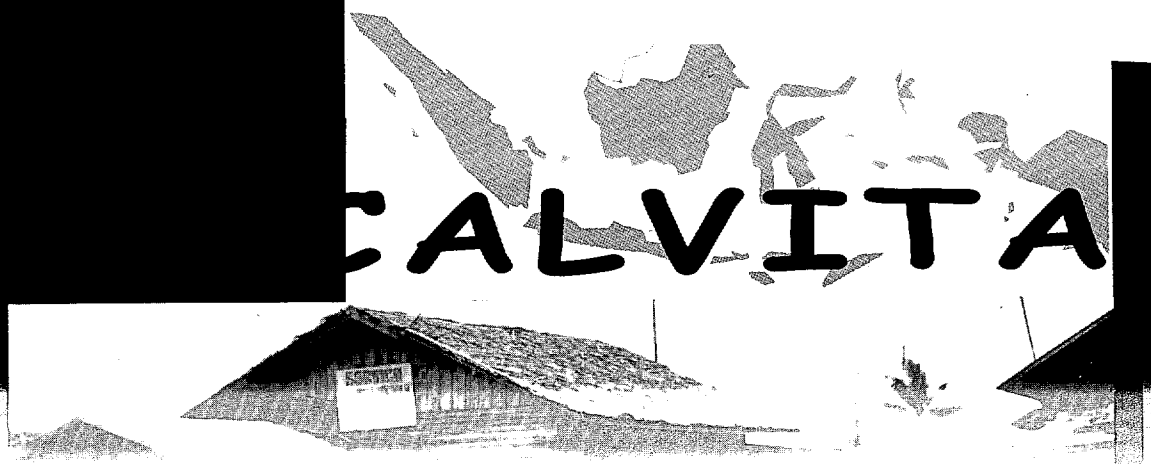


Baseline Survey Results: South Kalimantan

• Launch of SUVITAL (the social marketing campaign for the promotion of vitamin A–rich foods) in Banjarmasin

OMNI
Opportunities for Micronutrient Interventions

USAID

BAKTI HUSADA

HELEN KELLER
INTERNATIONAL

Contents

COORDINATION

Drs. Benny A. Kodyat, Head of the Directorate of Nutrition at the Department of Health
Dr. Muhilal, Head of the Nutrition Research and Development Center
Dr. Martin W. Bloem, Helen Keller International Indonesia Country Director

The Localvita program group includes, in addition to the coordinators: Alwi, Al-Habsyi, Asmira Sukaton, Dunanty R.K. Sianipar, Ernanti Wahyurini, Elviyanti Martini, Fatimah Muis, Kresnawan, Jonathan Gorstein, Mayang Sari, Nico Kana, Riza Adirza, Roy Tjiong, Ruflina Rauf, Saskia de Pee, Satoto, Siti Halati and Victor Sartono.

The Localvita program is a collaboration among the Department of Health of Indonesia, Opportunities for Micronutrient Interventions (OMNI), the United States Agency for International Development (USAID) and Helen Keller International.

Printed in the Republic of Indonesia
Editor: Federico Graciano

Helen Keller International
(Indonesia)
Jl. Patra Kuningan XIV/12
Jakarta 12950
Indonesia

Helen Keller International
(Headquarters)
90 Washington St.
New York, NY 10006
USA

preface

Indonesia has a long history of implementing successful strategies to combat vitamin A deficiency. Since 1974, high-dose vitamin A capsules have been distributed to children younger than 5 years old. By 1992, nutritional blindness caused by vitamin A deficiency was no longer a public health problem. However, low vitamin A status, which increases mortality risk, was still highly prevalent.

To further improve the vitamin A status of the population and to reduce the mortality related to poor vitamin A status, more groups of the population are currently being targeted with different strategies. This includes giving high-dose vitamin A capsules to women within one month after delivery as well as the promotion of dietary diversification. Dietary diversification includes foods naturally rich in vitamin A as well as fortified foods.

For two areas in Indonesia with a relatively low vitamin A status, South Kalimantan and South Sulawesi, social marketing campaigns are being implemented to increase the consumption of vitamin A-rich foods. Both the identification of good food sources of vitamin A as well as the appropriate media for promoting them were done locally.

This document reports the launching of the social marketing campaign in South Kalimantan, as well as the results of the baseline survey conducted in the province. The baseline survey was conducted between November '96 and January '97, and the campaign was launched on 15 March '97.

Comparison of the baseline data with the endline data, from both the intervention and the control areas, will allow an assessment of the social marketing campaign's impact on vitamin A intake, vitamin A status, morbidity and mortality.

Frances Davidson
United States Agency for International Development (USAID)

Ian Darnton-Hill
Opportunities for Micronutrient Interventions (OMNI)

Martin Bloem
Helen Keller International (HKI)

LOCALVITA

Improvement of maternal and child survival through promotion of vitamin A-rich foods in South Kalimantan and South Sulawesi

introduction

In March 1997, SUVITAL, a social marketing campaign aimed at improving maternal health and child survival by promoting the consumption of local vitamin A-rich foods, was launched in the Indonesian province of South Kalimantan.

SUVITAL is the social marketing component of the LOCALVITA project, a collaboration among the Department of Health of Indonesia, Opportunities for Micronutrient Interventions (OMNI), the United States Agency for International Development (USAID), and Helen Keller International (HKI).

In 1996, staff from local government and local NGOs were trained on how to design a social marketing campaign. They then conducted formative research and developed materials for the campaign. In South Kalimantan, the campaign was launched on 15 March 1997.

The goal of LOCALVITA is to improve the health and survival of Indonesian women in their reproductive years and pre-school children by reducing vitamin A deficiency (VAD).

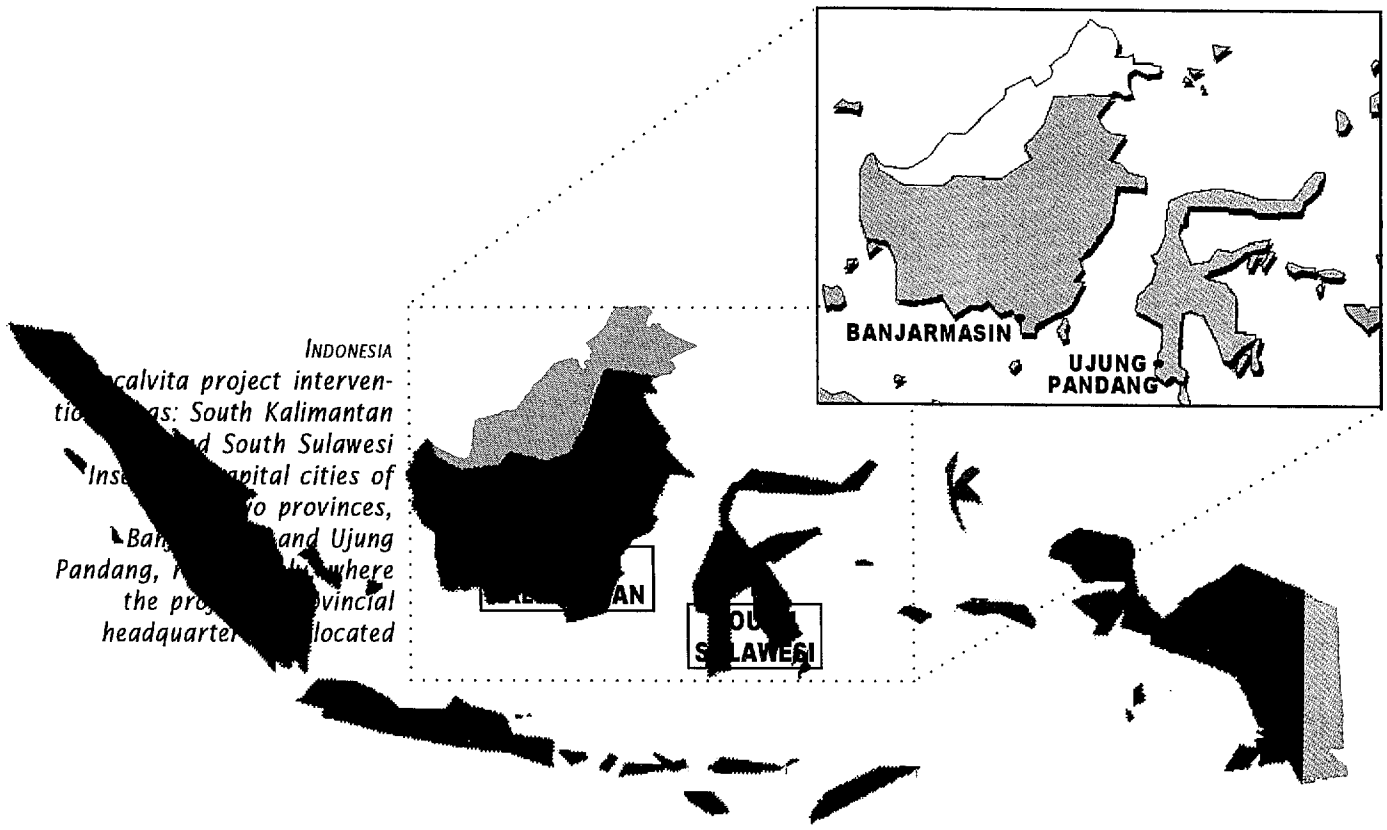
In order to monitor and evaluate the impact of the campaign, data is collected before the start (baseline) and toward the end (endline) of the campaign. The baseline survey was conducted between November 1996 and January 1997.

The goal of LOCALVITA is to improve the health and survival of Indonesian women in their reproductive years and pre-school children by reducing vitamin A deficiency.

HEALTH RISK

South Kalimantan was chosen as a project site as it is one of the less developed provinces of Indonesia and it is a USAID (United States Agency for International Development) Priority Area. Thus, the LOCALVITA project may benefit other USAID projects in the province.

Fifty per cent of children under five years old, nationwide, were found to have a marginal vitamin A



INDONESIA
...calvita project interven-
tio... as: South Kalimantan
... South Sulawesi
Ins... ...pital cities of
... provinces,
Ban... ...and Ujung
Pandang, ...where
the pro... ...vincial
headquarte... ...located

status, which puts them at great risk from the consequences of VAD, such as increased mortality, more severe illnesses of longer duration and, to some extent, anemia.

Breastfeeding and pregnant women are also at a relatively high risk of VAD. One of the actions taken in South Kalimantan and South Sulawesi was to improve the coverage of mega-dose vitamin A capsule (VAC) distribution to under-fives and women (within one month after delivery) through greater cooperation between the Ministry of Health, local NGOs, and the provincial government.

While vitamin A capsules are a short-term solution for the problem of VAD, a solution for the longer term lies in increasing the intake of vitamin A from dietary sources.

LONG TERM

While vitamin A capsules are a short-term solution to the problem of VAD, a solution for the longer term lies in increasing the intake of vitamin A from dietary sources. Therefore, the SUVITAL campaign has been designed to promote the increased consumption of locally available vitamin A-rich foods while efforts to improve the coverage of VAC distribution continue.

The design and planning of the SUVITAL campaign was carried out by staff from the local government and local NGOs, all of whom were trained by experts in social marketing.

PROJECT SITES

The SUVITAL campaign is being conducted in the Banjarmasin district of South Kalimantan.

In order to be able to evaluate whether changes in food consumption, vitamin A status and health between the start and the end of the campaign are related to the campaign, data is also being collected from a non-intervention (control) district in South Kalimantan, Banjar. Banjar was chosen as the control district because its geological

(from previous page)
characteristics and living conditions resemble those of Banjarmasin best.

Since Banjarmasin is categorized as an urban area, only the Martapura sub-district of Banjar was chosen as a control area as it resembles Banjarmasin the most. Data from both districts are compiled in this report.

The baseline survey collected data from women and their children under five on various aspects such as health, nutritional status, food consumption and nutrient intake. Data on the coverage of vitamin A capsule (VAC) distribution, indicators of socio-economic status and media coverage was also collected.

Preliminary results of the baseline survey

In total, data was collected from 2,112 households: 1,061 in Banjarmasin and 1,051 in Martapura. The data came from mothers and their youngest child under five years of age.

As there was almost no difference between the two areas, most of the data was pooled, except for a few indicators.

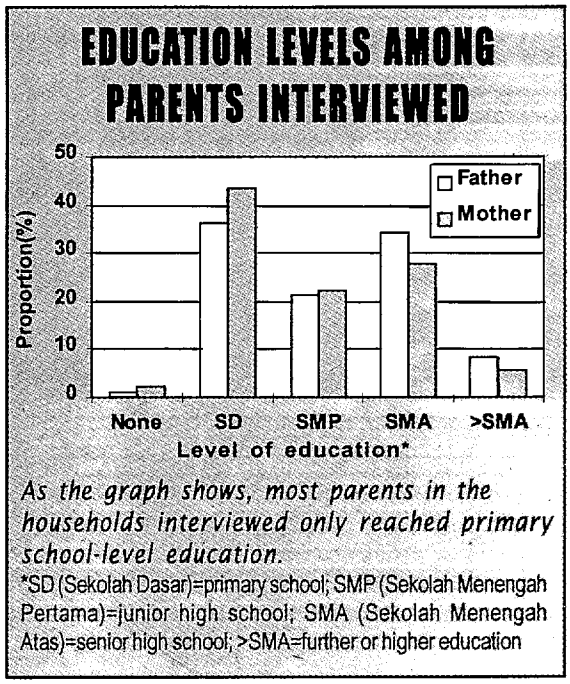
For most analyses, the number of households and subjects was 2,061 to 2,112. The number of infants was 554 and the number of children aged 1-5 years old was 1,558.

Socio-demographic and socio-economic characteristics

The average number of family members within the households interviewed was 5.1. Among them were, on average, 1.2 children under five years old. The mean age of the mothers was 28.3 years. Approximately 9.7 per cent of the women and 4.6 per cent of their husbands had had less than three years of education (considered illiterate).

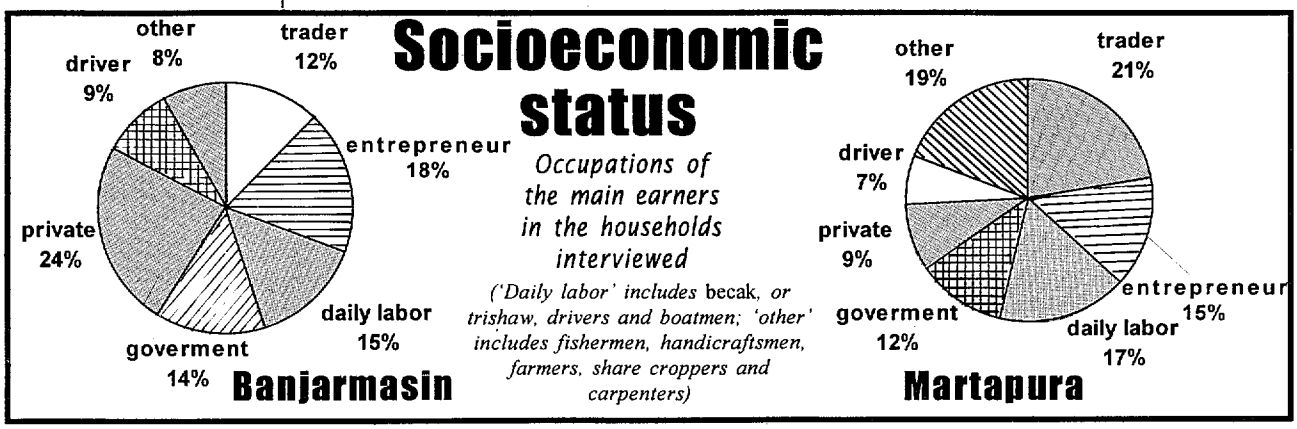
Nutritional status and anemia*

The data collection also provided information on mean height-for-age (HA) and weight-for-height (WH) z-scores by age of the children. Among children aged 1-5 y old, 37.7 per cent were stunted, with HAZ-scores of less than -2SD (Standard Deviation) and 19.7 per cent were wasted (WHZ-scores less than -2SD). Also of the children in this age

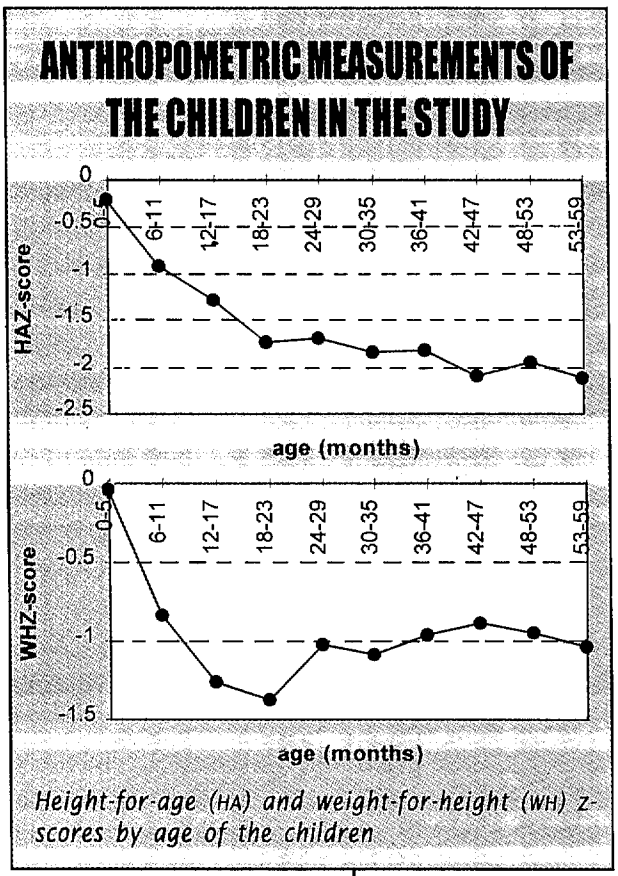


As the graph shows, most parents in the households interviewed only reached primary school-level education.

*SD (Sekolah Dasar)=primary school; SMP (Sekolah Menengah Pertama)=junior high school; SMA (Sekolah Menengah Atas)=senior high school; >SMA=further or higher education



** See section on 'Data Collection', p9, for an explanation of the measurements used in this report*



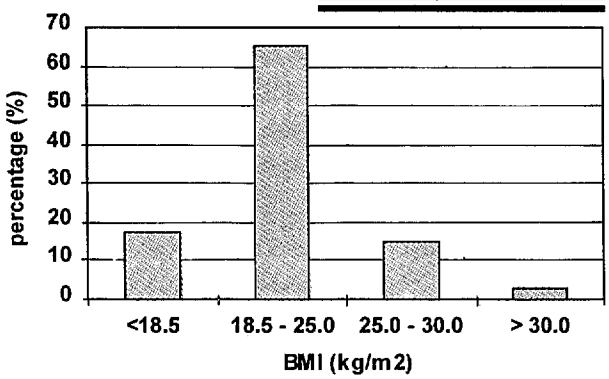
Height-for-age (HA) and weight-for-height (WH) z-scores by age of the children

survey results

group, 1.7 per cent had a mid-upper-arm-circumference (MUAC) of less than 12.5cm. Among the infants (children under 12 months old), 10.2 per cent were stunted and 8.5 per cent were wasted.

The body mass index (BMI) distribution of the mothers was calculated by dividing their weight, in kilograms, by their height, in meters, squared. According to the results of the survey, mean BMI was 21.9kg/m^2 and 9.1 per cent of the women had a BMI greater than 27kg/m^2 (often used as cut-off value for obesity in Indonesia).

While 16.9 per cent were underweight (with BMI less than 18.5kg/m^2), 25.9 per cent had a MUAC measuring less than 23.5 cm.



DISTRIBUTION OF WOMEN'S BMI: *Body mass index (BMI) distribution of the mothers interviewed was calculated by dividing weight by height*

Mean hemoglobin concentration among non-pregnant women was 13g/dL (grams/decilitre) and 13.7 per cent were anemic (with hemoglobin concentrations of less than 12g/dL).

Mean hemoglobin concentration among the children measured 11.3 g/dL and 35.7 per cent of them were anemic (with hemoglobin concentrations of less than 11g/dL). Until the age of 24 months, hemoglobin concentration was lower for older children, while after 24 months, the older the child, the higher the hemoglobin concentration. This reflects the decrease in children's iron needs as they grow older, until adolescence.

Results of the analysis of serum retinol concentrations are expected around later this year.

HEALTH

On the day of the interview, 2.9 per cent of the children and 0.2 per cent of the mothers were suffering from diarrhea (point prevalence*), whereas 6.5 per cent of the children and 1 per cent of the mothers had suffered from diarrhea in the previous seven days (period prevalence*).

Forty-four per cent of the children had a runny nose and/or were coughing on the day of the interview. In total, 11.9 per cent of the mothers reported that their child had suffered from measles in the previous 12 months. When children suffer from measles, their body vitamin A stores decrease rapidly.

DISTRIBUTION OF VITAMIN A CAPSULES AND IRON PILLS

The baseline survey also evaluated the coverage of vitamin A capsule (VAC) and iron pill distribution to mothers and children in both districts. In the previous six months,

** prevalence estimated at a particular time (point prevalence) or a stated period (period prevalence)*

64.4 per cent of the children (aged 1-5 years old) in Banjarmasin and 64.3 per cent of the children (of the same age group) in Martapura had received a vitamin A capsule.

Postpartum vitamin A capsule distribution to women was low; only 7.4 per cent said they had received a capsule after delivery of their youngest child. However, 67.1 per cent of curretly-pregnant mothers had already received iron pills.

FOOD PRODUCTION: HOMEGARDENING, LIVESTOCK AND FISHPONDS

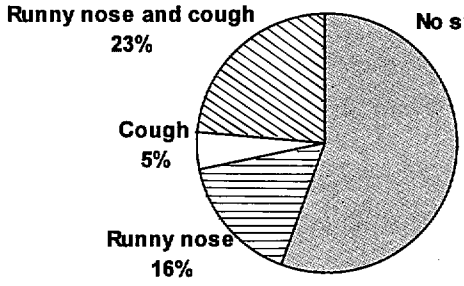
Almost a third (28.2%) of households in Banjarmasin and over half of those in Martapura had access to a homegarden. The median size of the homegardens was 5m^2 and they were located around as well as away from the house. Among these households, 3 per cent sold everything, 17 per cent consumed everything, and the remaining 79 per cent consumed approximately 50 per cent of what they produced in the homegarden.

BREASTFEEDING, FOOD CONSUMPTION AND NUTRIENT INTAKE

Most children up to 12 months old and almost 73.7 per cent of the children, aged 18 to 23 months, received breastmilk. Fewer than half of the children aged 24 months and older received breastmilk as well.

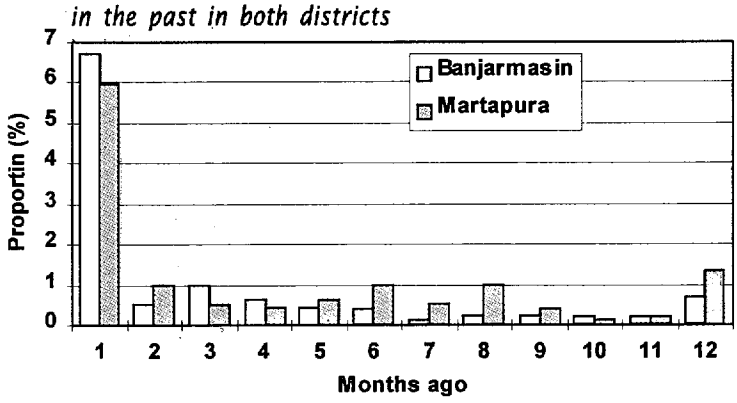
Among the mothers, dark-green leafy vegetables (DGLV) were the most frequently consumed vitamin A-rich food item, while among around 40 per cent of the children (aged 1 to 5), eggs as well as dark-green leafy vegetables were consumed frequently.

CHILDREN'S HEALTH ON THE DAY OF THE INTERVIEW AND WITHIN PAST 12 MONTHS



Left: Children with symptoms of acute respiratory infections on the day of the interview

Below: Children reported to have suffered from measles in the past in both districts



survey results

Among the mothers, it does not seem to be the frequency of consuming vegetables that should be increased, but rather the quantity. From the question on how much vegetables the women had prepared during the previous three days, it was estimated that the amo nt used per person per day (under-fives

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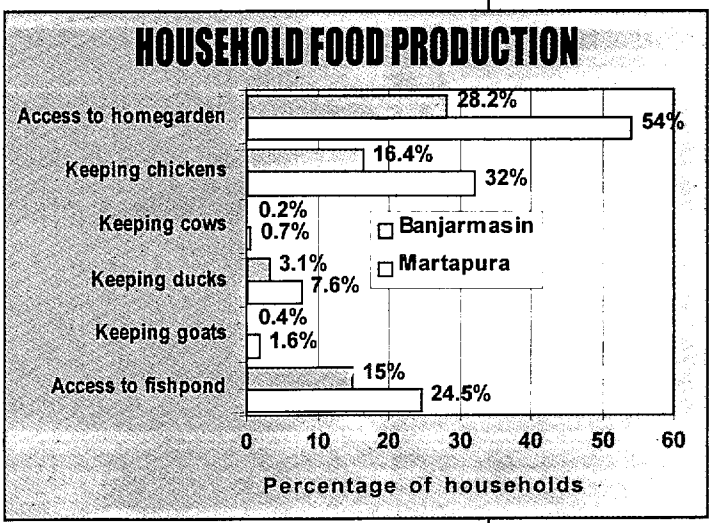
HOUSEHOLD FOOD PRODUCTION



LAUNCH REPORT

SUVITAL campaign lauched in Banjarmasin District

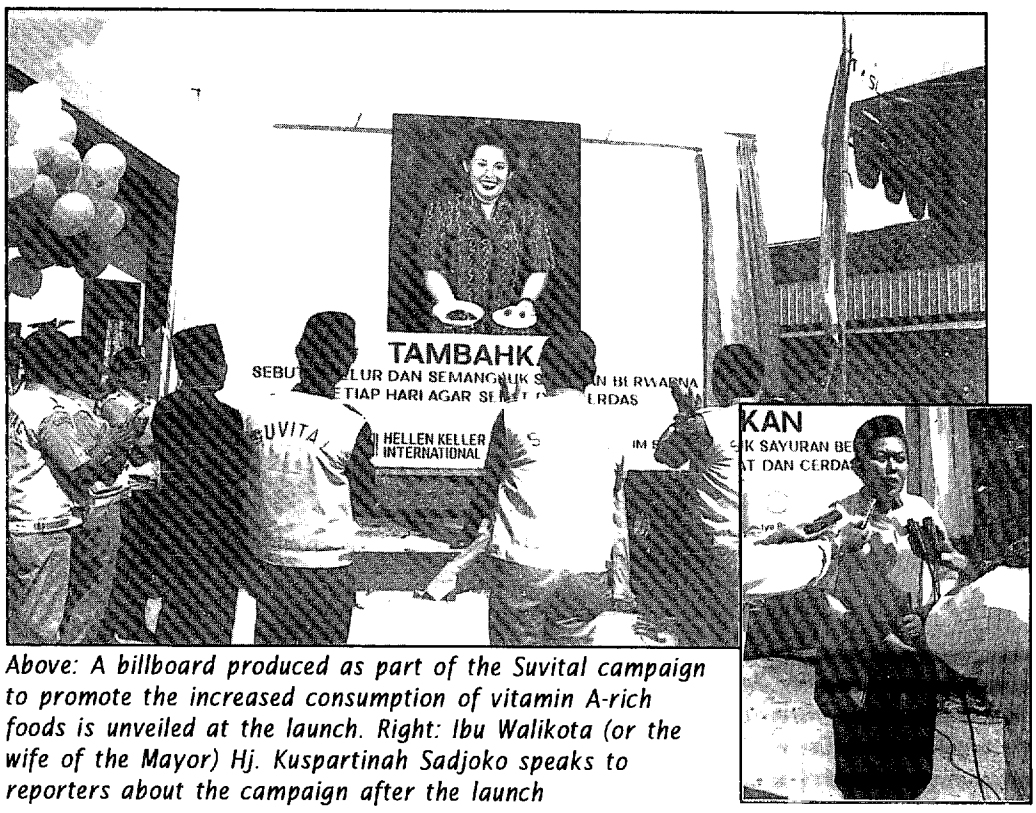
MEDIA produced for the SUVITAL campaign to promote local vitamin A-rich foods include:

- **a 1 minute-long radio spot to be broadcast by three radio stations in Banjarmasin**
- **a poster calendar for households, particularly those with mothers and children under five years old**
- **vests for launch and the Safari SUVITAL team**
- **a large billboard featuring an *Ibu*, or mother, with a bowl of vegetables in one hand and a plate of eggs in the other; the model for the *Ibu* was the *Ibu Walikota* (Mayor's wife), herself**
- **banners for the launch ceremony**

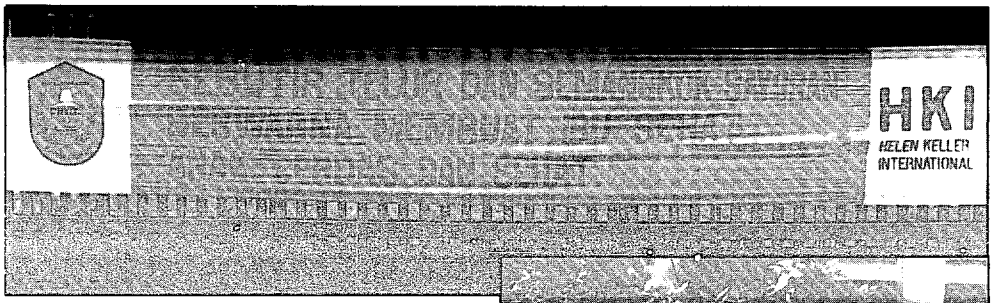
SUVITAL, the social marketing campaign to promote the consumption of local vitamin A-rich foods, was officially launched in South Kalimantan's Banjarmasin district on 15 March, 1997.

The launch took place at a special ceremony held in Banjarmasin, also the intervention district of the LOCALVITA project.

The ceremony was attended by various VIPs, including the wife of the Mayor (known as *Ibu Walikota*), Hj. Kuspartinah Sadjoko; Head of the Provincial Office of the Ministry of Health (*Kanwil Depkes*), Dr. H. Soejono H., SKM; Head of the Provincial Health Authority (*Dinas Kesehatan*), Dr. Sudarsono Abuyahman; Ir. Nini Sahal, from Pusat PKM (Jakarta); and representatives from the Women's Welfare Movement (PKK), the Provincial



Above: A billboard produced as part of the Suvital campaign to promote the increased consumption of vitamin A-rich foods is unveiled at the launch. Right: Ibu Walikota (or the wife of the Mayor) Hj. Kuspartinah Sadjoko speaks to reporters about the campaign after the launch



Above: A SUVITAL banner lines the street near the site of the launch ceremony. The message reads, "An egg and a bowl of coloured vegetables makes mothers healthy and children, healthy and smart". Right: Suvital cadres hand out snacks before the ceremony. Left: Ibu Walikota Sadjoko (third from left) watches the ceremony; Dr. Roy Tjiong (from HKI) and Ir. Nini Sahal (from Pusat PKM-Jakarta) are seated on either side of her.

Office of the Ministry of Agriculture (*Kanwil Deptan*), the Provincial Office of the Ministry of Religion (*Kanwil Depag*), and the National Family Planning Board (BKKBN), and HKI.

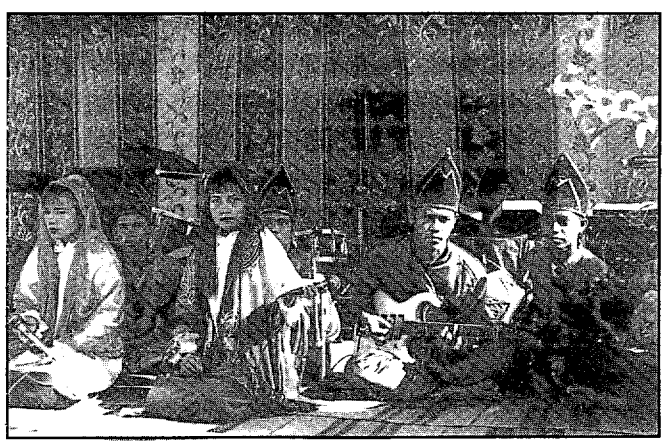
Among the other guests were heads and cadres from *puskesmas* (public healthcare centers) in Banjarmasin, cadres from *posyandu* (village health posts), village chiefs, and members of the public.

The two-hour-long ceremony, which began at 10am, was greeted by fine weather and clear blue skies. A festival atmosphere pervaded the scene as the streets around the site of the launch ceremony were lined with SUVITAL banners, flags and balloons.

This atmosphere was further enhanced by the performance of traditional music by a band, dressed up in colourful traditional costumes but using non-traditional microphones and electric guitars.

A comic moment occurred when, upon releasing balloons to symbolize the launch of the campaign, *Kanwil Depkes* Head Dr. Soejono looked up to see the balloons stuck to one of the poles displaying a SUVITAL banner, much to his own and everyone's amusement.

After the ceremony, several reporters were on hand to hold a brief press conference with the *Ibu Walikota*, including a TV news crew from SCTV.



Also produced was a vitamin A social marketing field manual for training cadres and other volunteer health workers, as well as a training manual for trainers. These manuals were produced by HKI.

All the materials, apart from the vests, display or broadcast the SUVITAL message:

(Indonesian)
"Tambahkan sebutir telur dan semangkok sayuran berwarna setiap hari agar menyehatkan dan mencerdaskan balita, dan menyehatkan ibu"

(English)
"Add an egg and a bowl of (dark-green leafy) vegetables to keep (under-five) children healthy and smart, and mothers healthy"

PROJECT ACTIVITIES

1995

December

1996

January

Development of training manual by the central team, consisting of Ministry of Health officials, experts from universities and HKI staff. The manual, titled *Buku Pedoman Pemasaran Social Sumber Vitamin A Alami (SUVITAL)*, which translates as 'Manual for the Social Marketing of Natural Sources of Vitamin A', was finalized in six months.

February

March

April

May

Formative research training for the social marketing teams for South Kalimantan and South Sulawesi. **Pretesting** of guidelines developed by the central team. **Formative research conducted.**

June

SOUTH KALIMANTAN BASELINE SURVE

OBJECTIVES

Main objective: To collect data on the health of mothers and under-five children in the project areas before the start of the social marketing campaign promoting local vitamin A-rich foods in order to evaluate the campaign's impact.

Specific objectives:

To assess

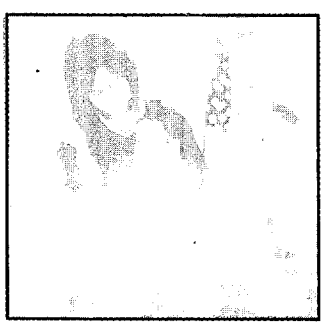
- the health and nutritional status of mothers and their under-five children, including vitamin A status;
- their socioeconomic status;
- their exposure to media;
- the women's knowledge about vitamin A
- their food consumption patterns;
- their vitamin A intake.

METHODOLOGY

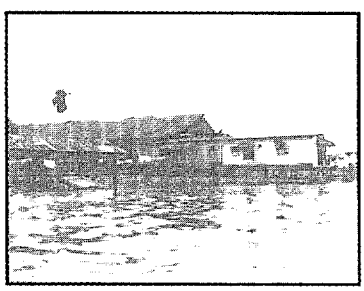
Survey areas:

- Banjarmasin (intervention area)
- Martapura (control area)

Households were randomly selected from a list of all the households with one or more children under five years old, using a random number table.



The subjects were mothers and their children under five years old.



Sample size per area was 1,050. Fifty villages in Banjarmasin and 32 in Martapura were involved. The number of households selected per village was proportional to the population size.

Total number of blood samples collected:

- *Banjarmasin*
  115 (mothers)
  133 (children)
- *Martapura*
  129 (mothers)
  138 (children)

Subsamples

x10 per x10

A subsample of 10 households per village, from 10 villages, was randomly selected for the collection of blood from mothers and under-five children. *(Total: 10x10=100 households)*

DESIGN AND IMPLEMENTATION

DATA COLLECTION

Conducted by graduates of *Akademi Gizi* (Academy of Nutrition), who had undergone a four-day training session, the following data was collected from the mothers and children between November 1996 and January 1997:

General information

Using a questionnaire, information was collected on

- socioeconomic background
- environmental conditions
- food consumption, particularly vitamin A intake
- food patterns (the frequency of consumption of several different food items)
- exposure to different media
- food production (e.g. home gardening, livestock, fish ponds)
- whether the salt they consume contains adequate levels of iodization (determined by the Kimia Farma test kit)

Anthropometric measurements

- The weight of each mother and each child, without shoes and with minimum clothing (for infants, without clothing), was assessed to the nearest 0.1kg with a UNICEF Mother & Child Weighing Scale.

Mid-upper-arm circumference (MUAC) was measured to the nearest 0.1cm

- The height of each mother and each child (two years of age or older), without shoes or hats, was measured to the nearest 0.1cm using a microtoise.
- The length of each child under two years old, without shoes or hats, was measured to the nearest 0.1cm using a length board.
- Mid-upper-arm circumference (MUAC) was measured to the nearest 0.1cm using an insertion tape produced by the Department of Health. For subjects with a MUAC larger

(cont'd next page)

Left: The length of children under two years old was measured using a length board

PROJECT ACTIVITIES

July

Media development, in the form of materials, including a public service announcement, a song, the LOCALVITA logo, and leaflets were developed by the teams, based on the formative research results

August

September

Pretesting of the media was conducted by broadcasting the public service announcement and the song through sound systems on public transportation, instead of the radio. The media was then evaluated and revised accordingly.

October

November

December

Baseline survey conducted in both South Kalimantan and South Sulawesi, as well as media revisio preparations for the promotional campaign and development of the Plan Of Action (POA).

1997

January

In January preparations were being made for the launch of SUVITAL in the following month. The **launch** took place in Banjarmasin on 15 March 1997.

February

March

The launch of SUVITAL in Banjarmasin was attended by staff of the Provincial Office of the Ministry of Health and HKI, among others. **Baseline survey** data entry was on-going until the end of April.

April

survey design

Data collection

(cont'd from previous page)

than the insertion tape, a measuring tape was used.

From these measurements, several indicators were created, including weight-for-height (W/H), height-for-age (H/A), and weight-for-age (W/A), expressed as standard deviation scores (Z-scores) from the international reference population (NCHS) recommended for international use by the World Health Organization (WHO).

The body mass index (BMI) of the mothers was calculated by dividing their weight (kg) by their height (m) squared. Internationally, women with a BMI less than 18.5kg/m^2 are classified as malnourished, while those with a BMI of 25-30kg/m^2 are classified as overweight. A BMI of over 30kg/m^2 reflects obesity.

Biochemical parameters

- Venous blood (3ml) was collected by staff from the *Balai Laboratorium Kesehatan* (the Health Laboratory) in South Sulawesi, who had been trained by staff from the NRDC in Bogor. Hemoglobin concentrations were assessed in the field using the HemoCue instrument. The rest of the blood was kept cool and protected from light for the next 4-8 hours, before being transported to a laboratory. In the laboratory, the blood was then centrifuged and the serum separated and frozen at minus 20 degrees Celcius.
- Serum concentrations of retinol, carotenoids and ferritin are analysed at the NRDC.
- In addition, between February and March 1997, in South Sulawesi, data was collected on the prevalence and types of parasitic infestations in the women and children in a collaborative effort with Hassanudin University. These results will be presented in the next LOCALMITA report.

The body mass index (BMI) distribution of the mothers was calculated by dividing their weight by their height, squared.

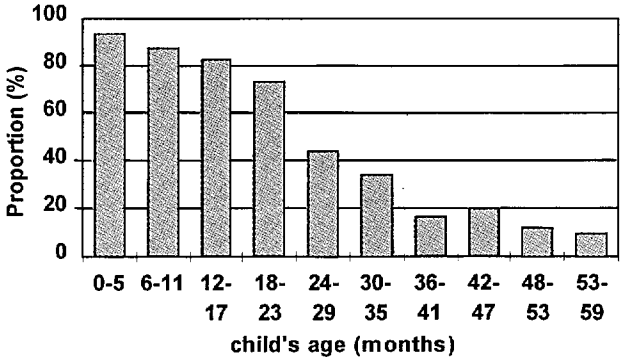
(cont'd from p5)

accounted for 50%) was around 74g. Corrected for the loss after cleaning the vegetables, that would mean that daily vegetable consumption was approximately 45g per person. The fruits that are consumed do not seem to be rich sources of vitamin A as the data on sources of vitamin A intake show that the percentage of vitamin A intake from fruits was only 1 to 4 per cent. Among both the mothers and children, animal foods were found to be the greatest source of vitamin A. In LOCALVITA's other project site in South Sulawesi, vegetables were found to the greatest source of vitamin A among both mothers and children.

Fortified foods, such as some brands of noodles, instant porridges and sweetened condensed milk, contributed very little (less than 0.5%) to total vitamin A intake. However, for some women and children it was a substantial source. Almost all the households prepared noodles (*mie*) one or more times a week and, in 34 per cent of the households, the *mie*-product used was one that is fortified.

Women were also asked how much oil was used in the household per week. From this, oil consumption per person per day was estimated at 29ml, which is equivalent to 261kcal, or 1102KJ. Assuming an average energy intake of 1800 kcal, this means that at least 15 per cent of energy is from fat. Other important dietary sources of fat are coconut products and meat.

In 82.3 per cent of the households, the salt used was found to be adequately iodized (greater than 30ppm). In South Sulawesi, it was found that only 16 per cent of the households used iodized salt.

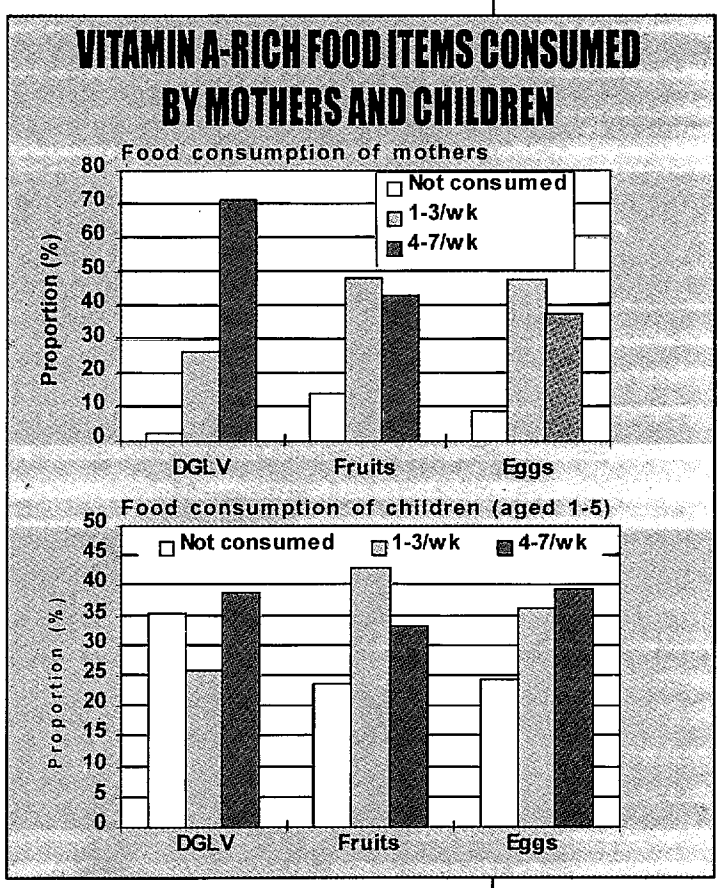


BREASTFEEDING: *Proportion of mothers still breastfeeding their child, by child's age*

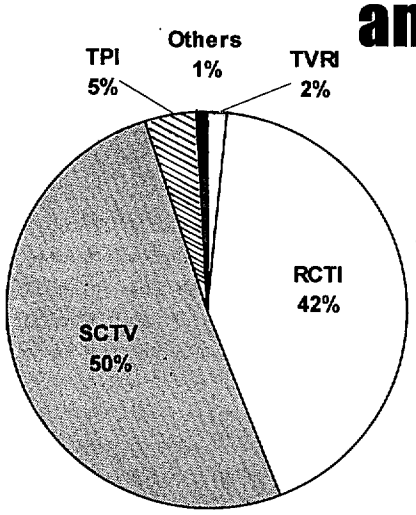
survey results

KNOWLEDGE ABOUT VITAMIN A-RICH FOODS AND SOURCES OF KNOWLEDGE

A large proportion of the women in Banjarmasin (89.6%) and Martapura (90.5%) said they had heard about vitamin A. Sources of information were varied and include health workers, television broadcasts and radio broadcasts. Some women mentioned more than one source of information. The most

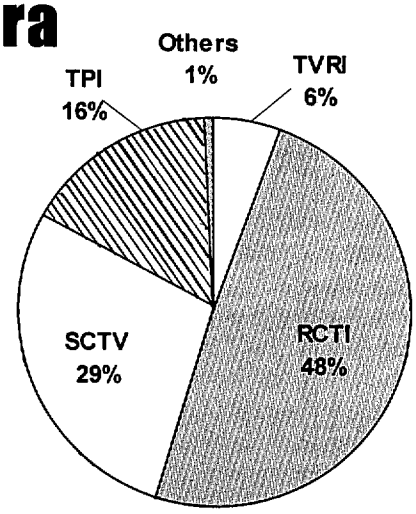


Prefered TV channels in Banjarmasin and Martapura



Banjarmasin

The households interviewed in both Banjarmasin and Martapura appeared to favour commercial TV stations, particularly RCTI and SCTV, in contrast to the state education channel, TPI, prefered by most households in the rural South Sulawesi project areas. South American soap operas, known as Tella Novella, were also found to be quite popular in South Kalimantan.

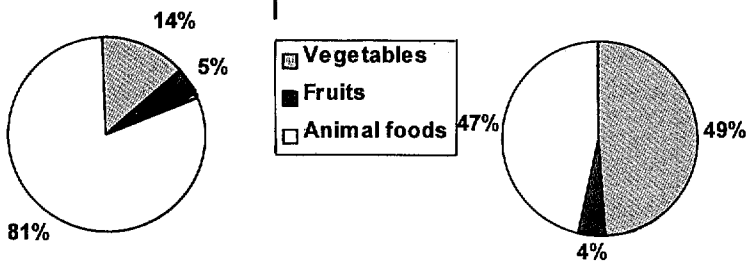


Martapura

survey results

important source, however, was the health worker.

When asked what they thought vitamin A was important for, 17.7 per cent did not know, 73.1 per cent replied 'for the eyes', 4.5 per cent replied 'for growth' and 2.4 per cent mentioned resistance against disesase (immunity). They were also asked which foods they thought were good sources of vitamin A. A large proportion of the women in Banjarmasin (65%) and Martapura (69.5%) correctly mentioned one or more food items containing vitamin A, mostly dark-green leafy vegetables, carrots, and yellow fruits.



Sources of children's (aged 1-5) VA intake (330RE/d)*

Sources of women's VA intake (520RE/d)*

SOURCES OF VITAMIN A INTAKE: As the graphs indicate, animal foods contribute the most to the vitamin A intake of the mothers and children in the study *(RE/d=retinol equivalent/day)

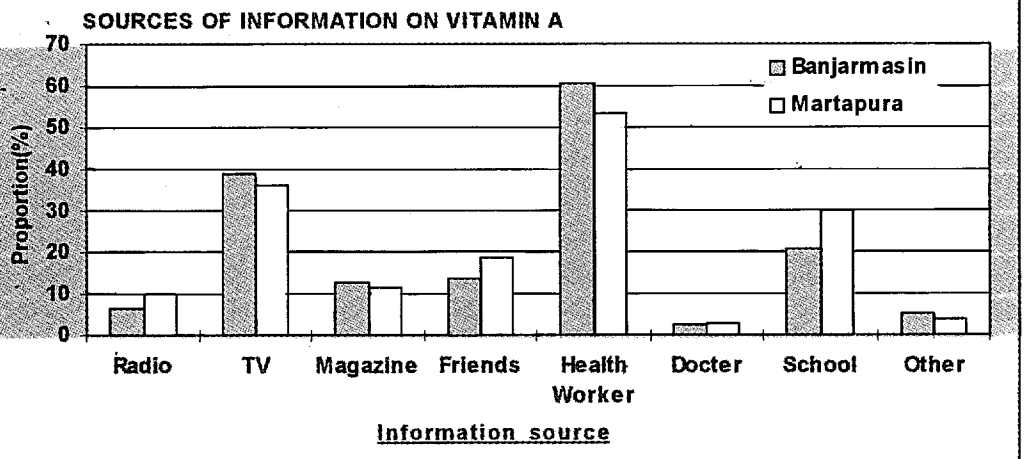
MEDIA-COVERAGE

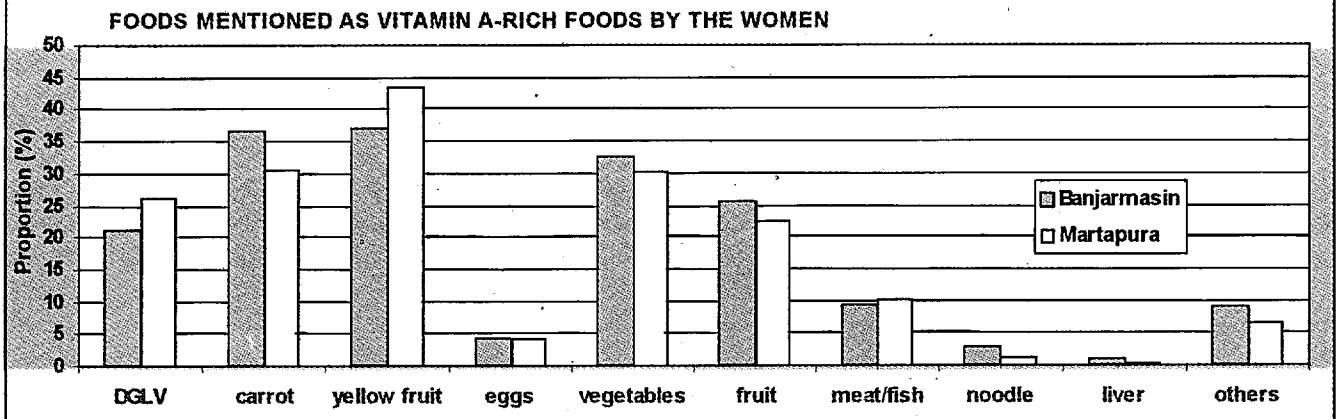
In total, 67.8 per cent of the women reportedly listen to the radio on a regular basis. The most popular time to tune in was in the morning. In Banjarmasin, 86.3 per cent of the households owned a TV set, compared to 76.8 per cent in Martapura. In both districts, 96 per cent of the women regularly watch television. The most popular times for watching television were in the afternoon and in the evening.

In urban South Kalimantan, where the *Tella Novella* (South American soap operas dubbed in Indonesian) seemed to be quite popular, it was found that the prefered TV channels were largely RCTI and SCTV. The households interviewed in rural Sulawesi, however, appeared to favour the state education channel, TPI, and Indosiar.

SOURCES OF INFORMATION AND KNOWLEDGE ABOUT VITAMIN A AMONG THE WOMEN

Right: Health workers were found to be the best source of information on vitamin A among the mothers Below: Dark-green leafy vegetables and fruits appeared to be the most common foods considered by the mothers to be rich in vitamin A, while knowledge of eggs and liver was low





conclusion

The social marketing campaign in South Kalimantan will put most emphasis on eggs and vegetables as foods rich in vitamin A.

With respect to egg and vegetable consumption, the baseline survey in South Kalimantan found, among other things, that:

- women eat vegetables almost every day while children's vegetable consumption is relatively low
- average vegetable consumption is approximately 45g per day and can thus be increased
- approximately 30 per cent of the households in Banjarmasin have a homegarden and 97 per cent consume some or all of their produce
- vitamin A intake from fruits can be increased

Other findings

The best TV-channels for broadcasting messages about consuming vitamin A rich foods in Banjarmasin would be RCTI and SCTV.

The coverage of VAC distribution to children under five (64.4%) can be increased, while more efforts must be made to give vitamin A capsules to women after delivery.

The results on vitamin A status, measured by serum retinol concentrations, of the mothers and children are expected later this year.