Iringa programme was comparable to that of TINP, but was five to ten times that of the Indonesian *posyandu* system. The expansion of the Iringa approach throughout Tanzania has built more on existing resources with far lower unit costs. The impact of such large-scale expansion is yet to be measured.

FROM HEALTH TO DEVELOPMENT

In the BRAC programme, teaching mothers to make and use oral rehydration solution was the central health intervention. Starting with this nationwide activity, the programme expanded to include other health services such as immunization and vitamin A prophylaxis. With help from BRAC, government services successfully provided immunization to more than 80 per cent of infants in a quarter of Bangladesh. The programme later evolved into a more comprehensive primary health care system based on community volunteers dealing successfully with such difficult problems as the treatment of tuberculosis and family planning. However, nutritional improvement remains a major challenge because of the persistence of widespread poverty. Today, with the recognition of the factors underlying ill-health and malnutrition, BRAC's new women's development programme will incorporate the education of young girls, adult literacy, credit and income-generation with the array of primary health care activities. This should make for truly healthy and self-reliant families.

These studies raise a number of important questions:

- How is scaling-up of community-level activities achieved? What is gained or lost in the process? Can flexible, community-based programmes such as Iringa go to scale, or are more rigid standards necessary, like those of TINP or the *posyandu* programme?
- What interventions work for nutrition? What is the role of growth monitoring? Of health care? Are food supplements necessary? What costs are acceptable? Unnecessary?
- Can nutrition and health be improved amidst poverty?
- BRAC and Iringa focus more on the very poor than TINP or Indonesia's *posyandus* which involve entire communities. Should programmes focus on the poorest or cater to all groups?
- These experiences show that health, nutrition, agriculture, education, employment, are all important. How can different development sectors be integrated to achieve synergy and increased impact?

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CHAPTER 7

Indonesia's *Posyandus*: Accomplishments and Future Challenges

JON ROHDE

The author chronicles the expansion of the Indonesian village-based nutrition and primary health care programme that has spread throughout the country's 68 000 villages. Indonesia's posyandu programme has evolved over the decade into the basic implementing strategy for comprehensive primary health care in that country.

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INTRODUCTION

The 1973 National Nutrition Survey of Indonesia, an evaluation of the small but comprehensive intersectoral Applied Nutrition Programme of the previous decade, exposed the extent and severity of malnutrition. With half its children undernourished, the nation embarked on a multisectoral effort to improve child growth, exploring numerous approaches through the 1970s. By 1979, an affordable village model, organized by the local women's organization (*PKK*) with technical help and guidance from the health, agriculture, and religious affairs ministries had evolved and was operating in nearly 1000 villages (Village Family Nutrition Improvement Programme—*UPGK*). In the early 1980s, with the considerable organizational abilities of the National Family Planning Board (*BKKBN*), the programme increased services to include contraceptive supply, as well as growth promotion; and expanded into nearly half of the nation's 68 000 villages, covering almost all villages in the densely populated islands of Java and Bali. With the acceptance in 1984 of the goal of universal immuni-

zation by 1990, programme services enlarged still further. A massive increase in *posyandus* (integrated health service posts) resulted in nearly a quarter million posts by 1990. The expansion process, while achieving the target of 80 per cent infants fully immunized, saw a modification of post activities. Less attention was paid to child nutrition and growth, and ownership and participation by village women declined. Today, steps are being taken to decentralize control, to reduce dependency on technical medical personnel, and to return primary responsibility to the community. With improvement in quality, the *posyandu* system offers a highly equitable, affordable, and practical approach to reaching health for all in Indonesia.

THE EARLY YEARS: RECOGNIZING MALNUTRITION

The earlier chapter in PHFA[1] chronicled the development of awareness of the nutritional problem in Indonesia, the processes leading to a policy, and the political will to undertake a nation-wide programme to improve nutrition in 68 000 villages, covering over 20 million children under the age of five. The National Nutrition Survey found half of Indonesian children to be undernourished. Existing efforts in nutrition only treated established malnutrition, and had placed a major emphasis on protein, rather than overall food intake. In 1974, President Suharto established a coordinating board for nutrition comprising ten ministries, to explore ways to address this massive problem.

ESTABLISHING A VILLAGE APPROACH

The village family nutrition improvement programme (*UPGK*), an intersectoral activity, grew in the 1970s out of the increasing interest in mobilizing village volunteers to improve health and nutrition using simple, affordable and effective interventions. In Java, the most populous and poorest part of the country, the women's Family Welfare Programme, *PKK*, was already reaching into most villages, organizing women around practical, useful and socially-attractive activities to improve family and community welfare. Their monthly meeting, the *arisan*, primarily a social gathering, became an opportunity for health and nutrition education, often guided by staff from the nearby health centre. In many villages, the opportunity was used by women to weigh children, plot weights on growth cards, and discuss nutrition and child growth as they prepared a common meal for their children from locally available foods using a wide range of local recipes. As the activities were conducted entirely by volunteers or cadres, the education

and communication was based predominantly on local knowledge and experience with successful mothers counselling and guiding others. The importance of weight gain was popularized in a national slogan, 'A Healthy Child, As He Gains in Age, Gains in Weight'.

EXPANDING THE VILLAGE MODEL

The Department of Health adapted this village model, providing standardized activities and training, and eventually reaching 800 villages throughout Java and Bali by 1979. However, the *UPGK* became excessively expensive because of the provision of daily food supplements to identified undernourished children. Not only was it costly, but the feeding also diverted attention from nutrition education and the importance of growth. Earlier in the village women's clubs, small groups of mothers or neighbourhoods had taken responsibility for remedial action for children not gaining weight. However, this self-reliance was substantially eroded in the expanded programme. Dependency on Health Department funds and workers limited expansion and, unfortunately, reduced village participation.

From this experience, several principles became evident:

- a programme must be village-based and affordable with local resources;
- communities need to take responsibility for both identifying the nutrition problem and its solution, and to be held accountable for measuring the outcome of intervention; this requires clear, unambiguous and locally understandable goals;
- emphasis must rest on prevention rather than treatment of malnutrition; only in this way can malnutrition be effectively and affordably dealt with.

LINKING NUTRITION TO FAMILY WELFARE

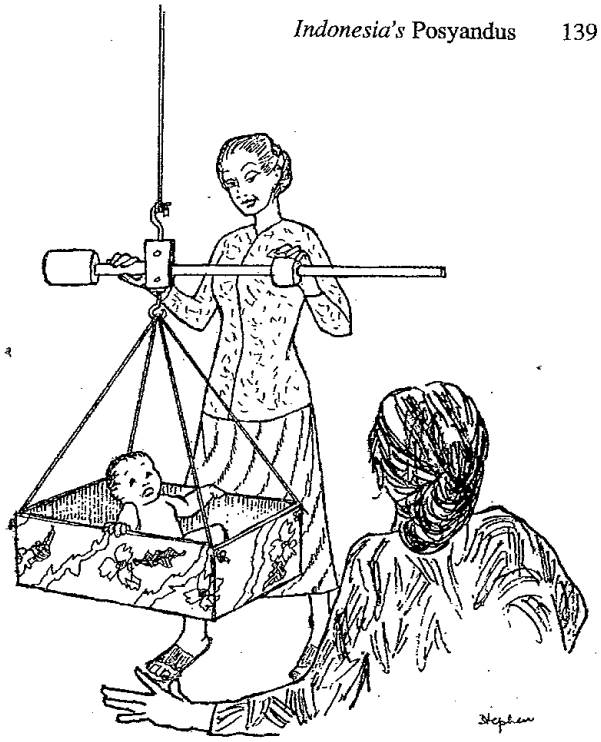
During the 1970s, the National Family Planning Programme expanded rapidly, with 7000 village-based lay workers (*PKKB*) responsible for identifying new contraceptive acceptors, and arranging for the monthly resupply of commodities, particularly the popular and widely used oral pill. Family planning acceptor groups were formed in every village in Java and Bali (see chapter by Suyono *et al.* in this book). These became the primary motivators of other acceptors. Membership as a family planner became a widely recognized social attribute. Villages openly discussed and advertised their success. As more and more villages reached current user rates of 60 or even

80 per cent of eligible couples, interest shifted from family planning to overall family welfare. The attractiveness of a monthly health and nutrition activity within the context of these acceptor groups became obvious, and the Family Planning Coordinating Board (*BKKBN*) adopted village-based growth monitoring and promotion as a central theme. This fitted well within the Third Five Year Plan which emphasized 'equity and sharing the fruits of development'. This focus on nutrition transformed the view of malnutrition from that of an unfortunate and inevitable concomitant of poverty to that of a developmental challenge. Healthy growth and good nutrition for all became a national goal.

During the Third Five Year Plan (1979–84), monthly weighing and nutrition education activities expanded to 80 000 weighing posts located in 41 000 villages. The *BKKBN* and the Health Department played the major role. Their field workers were trained to organize, establish and supervise the village posts. Agricultural extension workers were trained in the basics of nutrition, and particularly of growth. They attended the monthly weighing sessions, offering guidance in home gardening, small animal raising, and improved home food preservation. The Religious Affairs Ministry took major responsibility for interpreting health and nutrition goals through religious documents, particularly the scriptures of Islam, the religion of more than 80 per cent of the population. A major publication provided to all mosques cited holy works in their support for health, nutrition and responsible parenthood, providing a useful reference work from which religious leaders could develop sermons and talks in direct support of participation in the village weighing posts.

Policies and procedures became highly standardized and uniform in order to facilitate rapid expansion, while preserving quality. The 7000 family planning field workers (*PLKB*), who would organize and oversee the posts, were trained for five days using a set curriculum. The training featured slide-sound instructional materials which illustrated and explained each task they would perform. Each worker demonstrated competence in the basic steps of growth monitoring, and the 'nutritional first-aid package'—iron-folic acid tablets for anaemia prophylaxis in pregnancy, high dose vitamin A, and oral rehydration salts for diarrhoea.

At the village level, the programme was run by village volunteers, who received a five-day standard training (later reduced to three days to facilitate larger numbers) on the process of weighing, plotting, interpreting and counselling. Each post was provided with '*dachin*', a locally made, robust and standardized beam balance familiar to virtually every mother throughout Indonesia. Locally made cloth pants with long 'suspenders', or woven



Each mother weighs her own child suspended in a gaily painted box or basket using the familiar 'dachin' beam scale. This scale is widely used in the markets and villages of Indonesia.

baskets, wood chairs, or gaily painted boxes suspended the child. The amusement provided to children through this colourful swing has been an important element in the acceptability of weighing to mothers and children alike! The standard growth card was redesigned, removing nutritional status indicators and emphasizing growth through a series of narrow, coloured channels. Printed on indestructible plastic paper in gay colours, the card substantially enhanced mothers' desire to participate regularly in the weighing programme.

The weighing sessions were structured to be uniform from village to village to ensure that the critical aspects of growth monitoring and promotion were carried out. At each post, four tables were organized. At the first, the child was registered; at the second, she was weighed; at the third, the

weight plotted on the chart; and at the fourth and last, the child's growth pattern was interpreted and nutritional advice offered. At each of these tables, one or more village volunteers carried out the designated procedures.

FINE-TUNING AND PROBLEM-SOLVING

Analysis of the growth patterns of children participating in weighing posts throughout the 1970s provided a rich research base upon which to design specific nutritional strategies for the expanded programme. Growth faltering occurred early in the first year of life in most communities, often starting by 4 or 5 months of age, reaching a peak by the end of infancy. By 2 or 2 years and 6 months of age, almost all children had reached their eventual growth percentile. Thus, nutrition experts recommended that growth monitoring be confined to children under 3 years of age. They urged concentration on infancy, with the appropriate introduction of complementary foods along with the continuation of breast-feeding. However, the concept of the under-five (*balita*) has been so ensconced in the popular language that, to this day, the programme has attempted to reach all children through their fifth birthdays. As feared, this has proved to be one of the most weakening factors in the programme. It has diverted effort and attention to older children with demand for rehabilitation rather than for promotion of good growth in the youngest. Fortunately, the emphasis on regular growth has been maintained. The programme has focused on promoting weight gain in each child each month. In addition, an overall goal of 11.5 kg at 36 months (80 per cent of standard) for every child was established. This enabled the dynamics of growth, and also the nutritional status of each child to be tracked.

In an effort to standardize nutritional education, a behavioural change strategy was adopted. Twelve basic action messages were embraced. These prescriptive instructions were illustrated on a flip-chart. If followed, they would ensure regular growth. More often than not, the flip-chart was used hastily at 'table four' as the weight chart was returned to the mother. While attempting to ensure a minimum standard of behaviour, the standardized format of these messages diminished the spontaneity and relevance of earlier efforts to let successful mothers counsel others using local wisdom.

The nutrition intervention strategy was based entirely on behavioural change and local self-reliance. The 60 000 family planning-nutrition posts (*KB-Gizi*) provided only a small amount for a demonstration meal once a month, an extension of the village meal prepared in the original *PKK* nutrition *arisan* posts. The Health Department programme, expanding to over

13 000 posts, continued provision of daily supplementary feeding for the undernourished for several years. However, high costs and lack of evidence of impact led to its phasing out in all except the two poorest provinces. While most children grew well, 10–15 per cent eventually became significantly undernourished and 2–3 per cent severely malnourished (II and III degree). Referral to health centres or hospitals helped little in the absence of rehabilitation programmes at these facilities.

In order to facilitate local measurement of outcomes and accountability, a standardized and simplified monitoring system was established for all villages. The *SKDN* score was recorded each month in each village. This identified the total number of children, *S*; those enrolled in the programme, *K*; those participating in the monthly activity in a given month, *D*; and those gaining weight, *N*, the ultimate objective. A graphic display of these parameters became a means to stimulate inter-village competition to achieve higher *SKDN* levels. A single-page report form recorded these data, as well as information on the supply of critical materials such as ORS packets, vitamin A and iron tablets. An identical monitoring system was used at the sub-district, district, province and national levels, to oversee and measure progress.

COMPREHENSIVE VILLAGE SERVICES: THE *POSYANDU*

By late 1984, more than 80 000 posts in 34 000 villages provided basic nutrition and growth monitoring services to ten million children, one-half of Indonesia's total. Extensive and in-depth evaluation of these village programmes late in the Third Five Year Plan demonstrated conclusively the power of village-based activities to reach a previously unexpected and large proportion of the population with essential services.

In preparation for the Fourth Five Year Plan (1984–89), meetings and workshops hammered out an expanded array of activities which would come to be known as Village-based Integrated Service Posts, *Pos Pelayanan Terpadu*, the *Posyandu*. To the basic *UPGK* activities of monthly weighing, nutrition information, food demonstration, provision of vitamin A capsules, iron tablets, oral rehydration salts, and advice on home gardening had already been added a reliable supply of contraceptives and family planning advice. As Indonesia embraced the goal of Universal Childhood Immunization (UCI) by 1990, which would require complete primary immunization of 80 per cent of all infants each year, monthly immunization services were added to the package. This would require, for the first time, the presence of a trained health worker at each post. Thus, the Department

of Health assumed full responsibility for the technical guidance and operational supervision of all *posyandus*.

The *BKKBN* would transform its involvement. Its workers who previously oversaw the entire activity would now confine their attention to communication and behavioural change strategies and monitoring. The Agriculture Department was to continue to intensify its efforts to reach families in need with improved food production; and the Religious Affairs Department would intensify motivation of the community to increase acceptance of and participation in the programme. The Home Affairs Ministry, responsible for all development activities at the village level, was assigned the role of intersectoral coordination, with particular attention to greater involvement of village decision-makers, and increasingly of the *PKK* women's family welfare groups.

Not only was a wider range of services to be provided in all existing posts but, more importantly and ambitiously, the programme was to be expanded to all villages in all provinces. The ratio of target children per post was decreased from 250 to 100, requiring a proliferation of service posts even within existing village programmes. The management challenge of this vast expansion was staggering.

MICROPLANNING

An intersectoral body, the Area Nutrition Improvement Council (*BPGD*) which had been functioning at sub-district, district and provincial level for some ten years was expected to oversee the district microplanning process. Clear guidelines were established which included:

- introduction of the integrated post approach to community leaders by the health centre staff;
- a community self-survey to identify nutrition and health problems and increase awareness among all citizens;
- a community-wide meeting to discuss the survey results and the role of the community in seeking solutions by developing the *posyandu*; and
- identification and training of volunteers to take responsibility for activities at the post, as well as for problem-solving in the various sectors outside normal post activities.

In a nation-wide evaluation in late 1986, it was found that some three-quarters of health centres were undertaking all these steps in their effort to expand the number of *posyandus*. During this 12-province (out of 27) sample survey of 35 000 households, programme activities were as shown

Table 1. Selected integrated family health package indicators by programme (Sample: 35 000 households, 12 provinces)[2]

Programme	Indicator	Sample average	Highest province	Lowest province
		Per cent coverage		
Maternal and child health (MCH)	Ante-natal care	64	82	36
Family planning	Current users	49	56	31
Nutrition	Children weighed last month	52	65	39
Immunization	DPT1, 1–2 yrs	49	62	33
	Polio3, 1–2 yrs	34	48	14
	TT2, last pregnancy	46	56	20
Diarrhoea	Children with diarrhoea treated with ORS	34	51	20

in Table 1. By 1988, 200 000 posts in 49 734 villages were serving 18.2 million target children under the age of 5, estimated to be over 80 per cent of the target group in the entire country. In 1991, over 20 million children were enrolled in 250 000 posts. Some 60 per cent of these posts submit reports each month which record the services given and the results of weighing 6–7 million children.

INCREASED INVOLVEMENT OF HEALTH WORKERS

While the Health Department had taken only a facilitating role in *KB-Gizi* until the mid 1980s, the formal responsibility for expansion and service delivery resulted in health workers becoming the key operational personnel in the programme in each of the 3500 sub-districts. A fifth table was added to the village monthly activities, at which medical services were provided. Initially, immunization was the main service; later, in response to widespread demand, medical care was provided for common symptoms. As a result, demand and participation in post activities increased and the credibility of the *posyandu* as a health delivery point was enhanced. Previously, referral to the health centre, perhaps miles away, was rarely acted upon and consequently was not considered an effective health response to felt needs.

An unfortunate consequence of this new approach was the medicaliza-

tion of the programme, due to the presence of a health worker at each monthly weighing session. Each health centre had 60 or more posts and five to ten health workers served a population of 30 to 40 000. Lay cadres continued to conduct the weighing programme, but many became reluctant to provide specific advice to mothers on child care, nutrition, and feeding issues in the presence of a health professional. They referred any child from the fourth table to the new fifth table for medical intervention, regardless of the problem. As the health worker was often a sanitarian or other paramedical, untrained in nutrition, nutritional advice and guidance was frequently missing. Vaccines were offered and, too often, a further injection or medicine provided for a fee. There was a visible decline in the quantity and quality of educational interaction between cadres and participating mothers.

Ultimately, the quality of community participation changed, as mothers increasingly came to *posyandus* to receive services provided by health professionals, rather than to conduct an information-sharing and motivational session between themselves. The strong role played by the *PKK*, in which village women determined the site, timings and activities, particularly in nutrition education, of the weighing posts, receded in importance as medical workers scheduled and ran the *posyandu* sessions. Health workers determined timings to fit their own convenience. While posts had earlier conducted activities in the evenings or on weekends to suit the busy work schedules of village women, weighing sessions were now held mid-morning to suit the work schedule and travel patterns of the health centre staff. Whereas earlier the health post had often been a social gathering in the village, marked by the preparation of a common nutritious meal and extensive interaction of village women with their young children, it now became a formalized health delivery activity, a mini-clinic conducted in the village. Nutrition advice previously offered and shared among mothers became medical advice dispensed with tablets or even an injection from an overworked health worker. The rising emphasis on reaching EPI targets and the technical demands of immunization contrasted with previous emphasis on self-reliance and communication, with a resulting loss in community ownership and participation.

RECORD-KEEPING

With the addition of major services at the *posyandu*, the burden of record-keeping burgeoned. The original simple record containing weight gain information (*SKDN*) was replaced by numerous registers recording family planning acceptors, ante-natal care assessment, immunization, distribution

of vitamin A, ORS and iron tablets, and sometimes details of medical treatment, vital events, supply inventories, and even names of visitors! Because of demand for reports from the health centre, individual weights, previously recorded only on the mother-held child weight card, were now kept in a master register to ensure their availability during supervisory visits. Targets were set and monitored for the provision of each service. Emphasis on qualitative elements of communication, education and behavioural change shifted perceptively to the quantitative accomplishment of targets, numbers of posts, participation percentages, family planning acceptors, injections, cases treated, and so on.

TRAINING

With continued expansion in the number of posts, reaching nearly one-quarter million by the end of 1990, the need to train new cadres exceeded the capacity of training resources. It had always been expected that *volunteer* nutrition cadres would serve for several years, but eventually be replaced. With up to five cadres per post, there were now nearly a million of these field-trained workers, with an estimated average turnover time of two years. The training course was abbreviated from five to three days, and participatory learning activities were reduced accordingly. While the evaluation of cadres in 1989 showed an overall appreciation of how to weigh children, mark weight cards, and assess the health of children, a far smaller percentage were found to be capable of giving meaningful nutritional advice or interacting in a collegial or productive way with mothers.

PARTICIPATION AND COVERAGE

A 1989 UNICEF-sponsored study in four provinces showed 80–98 per cent enrolment in the programme, 35–70 per cent monthly participation, and 46–52 per cent of those participating gaining weight each month. This latter percentage has been rather constant since the programme began. Coverage figures of target children (under five) have hovered just over 40 per cent for the past five to seven years. More careful analysis, however, shows 80–90 per cent participation in the first year of life, and 75–80 per cent in the second year, the most critical and important age groups (Fig. 1). Low overall attendance is accounted for largely by the striking fall of participation in 3-, 4-, and 5-year-old children, dipping to 20 per cent or less. There has been a consistent tendency for mothers with higher education, higher socio-economic status, and overall higher participation in government pro-

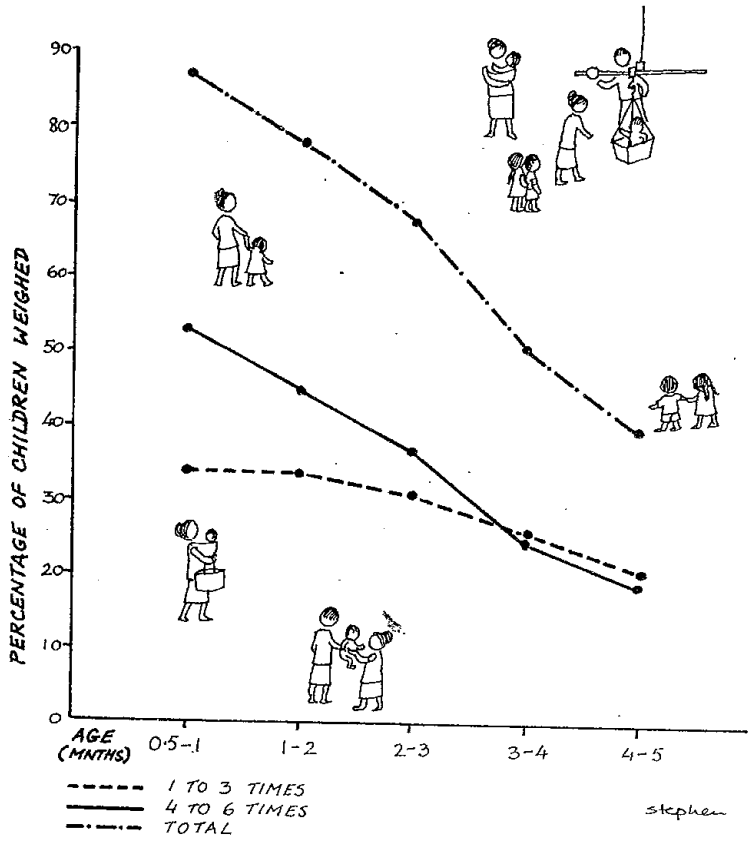
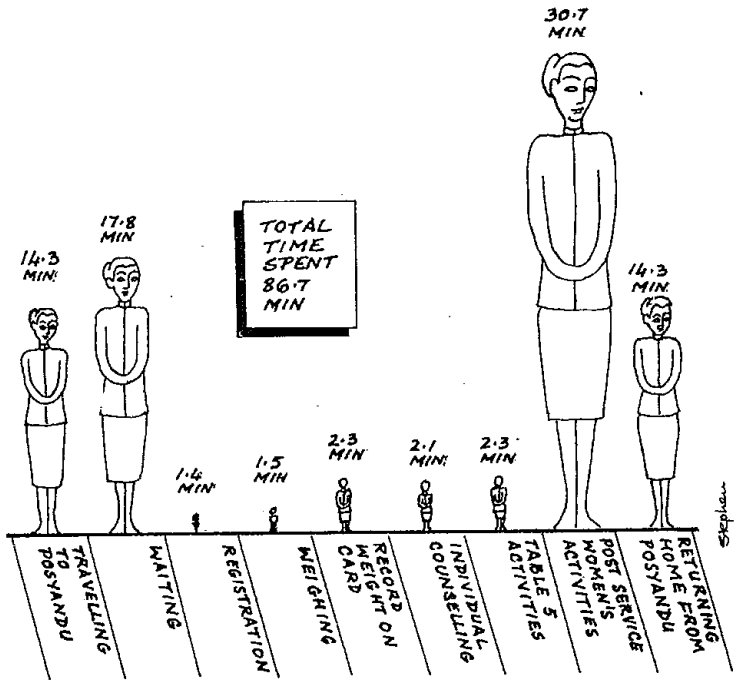


Fig. 1. Participation in monthly weighing by age of child—attendance, initially high, falls with age.

grammes, to participate more regularly in *posyandu* activities. Nonetheless *posyandus* reach a higher proportion of poor, illiterate and marginalized village persons than any other government health effort in Indonesia.[3,4]

A recent study of mothers' attendance has shown a high positive attitude towards the post, with improved nutritional knowledge correlating well with frequency of attendance. Mothers believe that weighing is an integral part of the monthly activity. But they are often unable to cite any benefit or, indeed, demonstrate understanding of the weighing process. Mothers still express greatest appreciation for the fifth medical table. Unfortunately, there is evidence of large use of unnecessary drugs provided for virtually



Time spent by an average mother attending monthly 'Posyandu' activities.[3]

all conditions and complaints. This increases costs and, most likely, iatrogenic problems. Mothers spend an average of 90 minutes per month at the weighing post with half an hour related directly to health activities: 18 minutes of waiting time followed by registration, weighing, recording on the card, individual counselling and Table 5 activities.

COSTS

Numerous cost studies have been conducted, showing that start-up costs for new posts are between $2 and 4 per child beneficiary. Recurring annual costs range from US $0.33 to 0.75 per child per year. Eighty-two per cent of costs are expended at the post in the village, 17 per cent at the level of the sub-district health centre, and 1 per cent at the district or regency (of which there are 265 in Indonesia). Government sources provide an average

of two-thirds of this money (range 39–88 per cent). Up to 70 per cent of these costs are for supplies, although in certain settings, especially in the outer islands, transport can take a larger proportion. Medicines, particularly in recent years, have claimed an increasingly large share of expenditure. However, as these are generally sold at a small profit, their value need not be calculated as a programme expense. The cost of staff, particularly those from the health centre, is 14–40 per cent of the total; supplies, 35–40 per cent; and capital investments, such as weighing scales and pants, growth cards, and other simple paraphernalia, between 5 and 25 per cent. The cost of cadre time is difficult to evaluate, yet increasingly more mothers are serving, becoming educated, and eventually giving their place to others. Becoming a nutrition cadre is clearly a form of active health education for young mothers in Indonesian villages. Some villages openly state their goal as the training of each mother to serve as a nutrition cadre, thereby increasing her knowledge and skills, as well as her stature in the community.

INTERSECTORAL ACTIVITIES

Recent evaluations suggest diminished activity in other sectors participating in the programmes. With the heavy emphasis on Health Department activities, agricultural extension workers became a rarity at *posyandus*. However, the new emphasis on community control gives hope of a resurgence of earlier home-garden activities. Religious leaders have given strong support to the EPI effort which also became the indicator programme by which the Department of Home Affairs monitored community participation. *Posyandus* are the source of contraceptive resupply for more than 25 per cent of current family planning users. Thus, while predominantly a rural health activity, multisectoral participation remains an important element of the *posyandu* programme.

THE CURRENT SITUATION

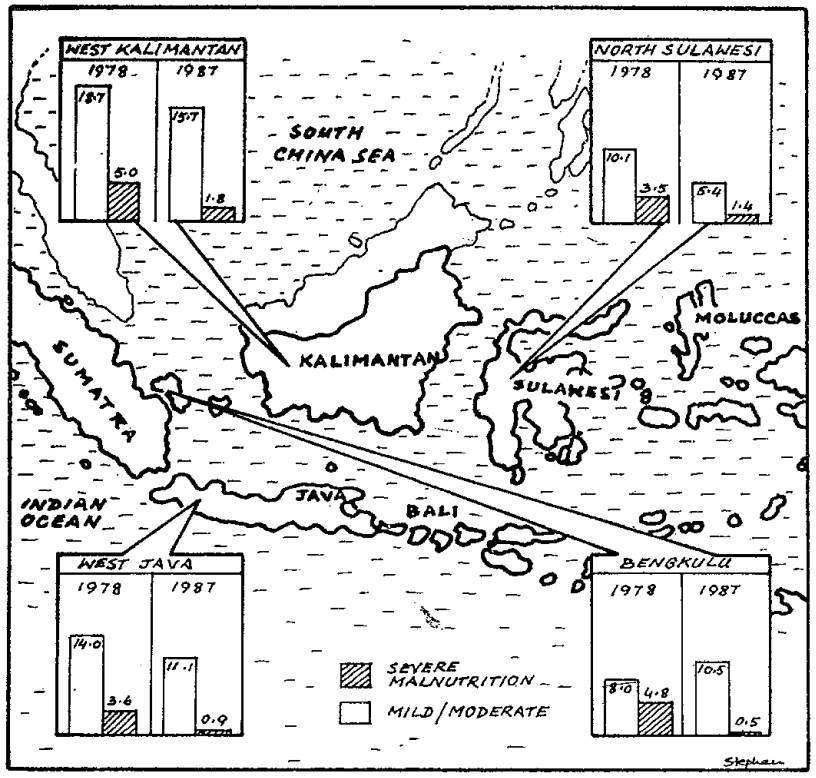
Today, in Indonesia, a quarter million health posts function each month providing an integrated array of primary health care services within easy access to almost 90 per cent of families, spread throughout the archipelago. Nearly a million village volunteers sustain the work of the programme in close conjunction with, and under direct supervision of, 15 to 20 000 health workers from nearly 5000 health centres. Previously confined largely to their institutions, health workers, doctors and paramedicals alike, now each take full responsibility for the integrated services in several villages, bringing about a new level of accountability of the health system to the community.

HEALTH ACHIEVEMENTS

Through this system, Indonesia has achieved remarkable improvement in its immunization coverage of children under one year of age, reaching over 80 per cent immunization by the end of 1990. Family planning participation has continued to rise, with 50 per cent current users throughout the country. In East Java and Bali as many as 80 per cent of couples use contraception (see chapter by Suyono *et al.*). Knowledge of ORT is universal, with high ORS use rates and a sharp decline in dehydration as a cause of hospitalization or death. From an estimated 600 000 deaths per year in 1974, two-thirds from dehydration, diarrhoea is estimated to have claimed 175 000 lives in 1989, only one-third of which were due to dehydration. Recent estimates (1987) show that infant mortality fell from 125 to 58 per thousand over a 15-year period. In those areas where *posyandus* have functioned longest, infant mortality fell below 50, with under-five mortality approaching the 1990s goal of 70 per 1000. In the province of Yogjakarta, the IMR is less than 20, and malnutrition is unknown—a dramatic change from the situation in 1974 when the programme was piloted there. Knowledge of the importance of growth in children is now almost universal. Indeed, one reason women give for not participating in the monthly weighing programme is that they feel embarrassed if their child has lost weight due to illness in the past month. They feel this is an adverse reflection on their own mothering.

NUTRITIONAL IMPACT

In spite of an increased appreciation and knowledge of common nutritional messages by almost all women, the impact of the programme on the nutritional status of the nation is still debated. As the programme expanded rapidly, baseline data were not carefully collected, and substantial intra-province variations were obscured by averages. Studies consistently show levels of severe PEM (<60 per cent weight for age) to have declined to 1 per cent or so (range 0.5 to 1.8 per cent) from 3–5 per cent 15 years ago. Moderate degrees of PEM vary by definition (Gomez II 60–75 per cent; or Indonesia 'undernutrition' 60–80 per cent of standard weight for age), averaging 12 per cent (range 8–20 per cent), only marginally lower than the mid-1970s.



Change in nutritional status in various parts of Indonesia over ten years of programme expansion.

While at first glance these figures may suggest the programme's nutritional impact to be rather modest, one must take into consideration the dramatic decline in mortality and the consequent likely rise in undernutrition attendant upon such improved survival. Those who would most likely have died in the 1970s under prevailing mortality levels were disproportionately the undernourished, who are surviving today. With a halving in infant and child mortality (from 180 to 75 per 1000 children under 5), one would have expected as much as a 5 per cent rise in malnutrition. The deaths of 80 out of 1000 children would have occurred predominantly among the moderately and severely malnourished. Their survival would have been expected to augment the numbers of malnourished by 50 or more per 1000 children. Instead, severe malnutrition has been almost eliminated

and moderate malnutrition remains at very modest levels, 10–15 per cent or less.

OTHER DEVELOPMENT BENEFITS

Associated with many *posyandus*, particularly in Java and Bali, has been the development of an array of ancillary activities. Health insurance, or *danasehat*, schemes have proliferated, underwriting the costs of referral curative services and providing simple medical care in the village by trained cadres available every day of the month, even when the *posyandu* is not functioning.[5] With the recent concern for cost recovery and self-reliant services, community-based insurance schemes for health, for family planning supplies, and for small credit for agriculture and women's development have proliferated through the *posyandu* system. Both governmental and non-governmental organizations (NGOs) use the system as a convenient community forum in which to initiate new activities and through which to encourage broad participation in development.

CHALLENGES OF THE 1990s

During the past decade there have been more than a hundred research projects conducted in and about the *UPGK-posyandu* programme. Major evaluations involving numbers of provinces and thousands of households have been conducted at intervals of two to three years. These have been supported by international agencies including UNICEF, USAID, the World Bank, UNFPA, and a variety of NGOs. The government and, particularly, the Directorate of Community Health Services, Ministry of Health, *BKKBN*, and a variety of national institutions have conducted intensive evaluations and prepared recommendations and reports. These provide a wealth of information upon which policies can be reformulated and activities redesigned to optimize *posyandu* performance.

The evaluations have highlighted major problems and proposed practical solutions, many of which have already been acted upon:

— Coordination of the many ministries operating at the village level has been hampered by the lack of a common budget and sectoral lines of authority. A national level coordinating committee has at last been established under the Ministry of Home Affairs, with the authority to set norms and ensure adequate resource allocations from all participating ministries.

— At the same time, the decision has been made to decentralize, allowing greater flexibility, depending on the level of development of existing posts. Provincial levels will similarly be encouraged to decentralize management functions to the regency or district (*Kabupaten*) level (roughly 200 to 400 000 population). Here, careful microplanning will enable evolution of the most appropriate systems for training, supply, logistics, monitoring, supervision, and information. Responsibility for monitoring programme activities and accomplishments has now been formally given to the top civil authority at each level, with each participating ministry accountable to the local administrative chief. Health and nutrition goals will be locally determined and monitored by the highest authority at each level of government.

— Quantifiable goals within a set time-frame for the reduction of malnutrition, as well as for sustaining healthy growth will be established at the national and provincial levels. Similarly, locally-set targets will strengthen the degree of participation, the sense of accomplishment, and the effort to achieve tangible goals of reducing malnutrition in each village. Action to achieve these goals will need to extend beyond the health-nutritional-medical sphere to involve the community in a dialogue, analysis and action to address underlying causes of malnutrition in their own setting. The range of activities addressing problems at the village level must be expanded and deepened to include areas such as water supply, food production, environmental sanitation, and other health promotion activities. This will depend on innovative action from the departments of Agriculture, Home Affairs, Religion, etc.

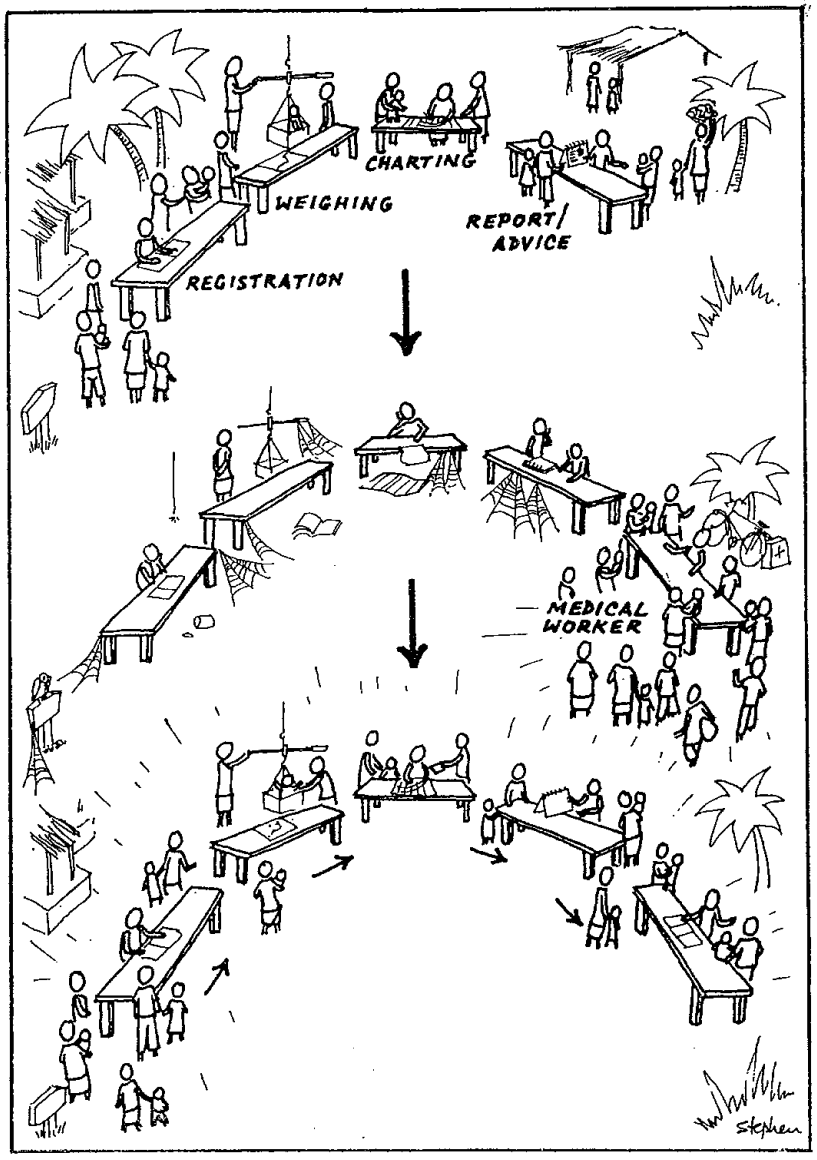
— Cadre selection will be more firmly based in the community with the understanding that the community must choose and supervise their own members to ensure that they gain maximally from the resources allocated.

— There will be greater intersectoral cooperation between cadres and outreach workers in sectors other than health to ensure a broader approach to identified village problems.

— A social marketing effort in support of the village-based nutrition programme, building up the role of the cadre and of self-help activities, would make the entire programme more credible.

— Attention will be given to improving the quality of training of cadres and the nature of their interaction with health workers to ensure a continuing flow of information and improvement of their skills.

— Some experimentation with cadre training will be necessary with the possibility of increasing the duration from the present three days to as long as eight days of initial training for at least one super cadre per post.



The original four-table focus on growth promotion atrophied as mothers flocked to the 'fifth' table for curative care. A new emphasis on participation and child growth is restoring the balance.

— Their understanding will be broadened to embrace not only growth monitoring and nutrition, but to include the other functions of the *posyandu* and a greater role for communication.
— Ongoing (in-service) training will need particular emphasis to ensure continued interest and enhance the skills of volunteers.
— Supervision must move from its narrow definition of monitoring targets and numbers to a supportive interaction with cadres.
— A lesson-a-month type of approach would enable health workers to impart a single new idea or concept during each session.
— A meeting between workers and cadres immediately following each *posyandu* session could review findings, identify follow-up action, and impart technical clarification. This would do much to establish a collegial relationship, mutual respect and maintain motivation among these groups.
— Greater efforts will be made to target growth monitoring and promotion activities to ensure that children in the most vulnerable groups participate. Emphasis will be placed on the younger child with revision of the target age to focus on those under three and particularly those under two years of age. Far greater attention will be given to imparting an understanding of the importance of growth faltering and to identification of affordable actions to be taken at the household or community level to ensure that growth is resumed.
— The shift towards curative services and dependency on doctors and paramedics is being carefully reconsidered. Some suggest providing no curative services during the *posyandu* session itself or, perhaps, reducing medical worker presence to only once in three months. In villages where several posts are functioning, services such as immunization or treatment of genuine illness could be provided at one neighbourhood post, within a few minutes walk of each hamlet. The monthly weighing session would continue to focus on improved nutrition and behavioural change, and be returned to its original concept as an activity of the community, aimed at solving their own problems with only technical help from outside.
— The information system, which has grown and become a burden in itself, has recently been redesigned and simplified. Once again, a single register and one-page consolidated report containing the most important indicators of each major programme will be used. Attention to single indicators in each major field will enable the community to see progress without being burdened by an inappropriate array of statistical data. Display of the indicators on village boards, a technique already widely used for many socio-economic parameters (e.g. population, electricity, roads, livestock, farm-land) will enable the entire village to view the changing pattern of the most important parameter—the health and nutrition of children. Were the village evaluation system of the Home Affairs Ministry to incorporate indicators such as an *SKDN* score, EPI coverage, and reduction in malnutrition (as they have done already for family planning), this would provide a nation-wide incentive for greater local resource allocation to this important element of village development. It would give real meaning to the claim that good nutrition and good health are legitimate national goals, reflected in the priority activities of each village. Then, not only would *posyandus* and services be universalized, but the outcome of healthy growth would also become a locally-salient national objective.
— Most important, major efforts are already being undertaken to return *posyandus* to the control and responsibility of the community. A recent instruction of the Home Affairs Ministry clearly charges each local authority with overseeing and facilitating the technical services to support basic community ownership and decision-making regarding *posyandus*. This will not be an easy task for there is always the tendency to bureaucratize when government workers are involved, to standardize, and to create dependency on technological solutions. Women's groups (*PKK*) will be asked to take a greater role in determining when and how the posts should function.

CONCLUSIONS

The dynamic nature and evolution of the *posyandu* system is its greatest guarantee of increasing relevance and effectiveness in the decade ahead. This programme evolved from a small village pilot project in the early 1970s in which women's groups initiated community-based growth monitoring and nutrition promotion. It received a major boost from the family planning network when tens of thousands of village contraceptive resupply posts adopted the monthly child growth promotion activity, run by village volunteers under the guidance of *BKKBN* field motivators. In the early 1980s, the opportunity to include immunization, health care, family planning and ante-natal care services resulted in a vast expansion of the system, to bring these benefits to virtually all families in urban and rural areas of Indonesia. The expansion process resulted in remarkably high coverage, especially of immunization, but took its toll in terms of reduced quality of services, particularly those relating to nutrition and behavioural change. Worst of all, the level of community participation and ownership of the

programme declined as the *posyandus* shifted to a more medical and health focus.

The challenge today is to shift ownership back to the community while retaining the desired health services and convenience of health and nutrition at the doorstep. Additionally, the community must take a greater role in identifying the underlying causes of persistent nutritional problems. They must be facilitated in drawing on other sectors to join in addressing these underlying developmental issues. Through greater participation and control at the community level will come broadened appreciation of the determinants of ill-health and undernutrition, and an intersectoral development process which will provide more definitive and long-range solutions to these underlying problems.

It is interesting and important that the monthly weighing has continued to provide the recurring opportunity for a universal programme capable not only of delivering primary health care services but, more importantly, encouraging a high level of involvement in health care of all families, and particularly of women. The attention to monitoring child growth and well-being has been a major factor in making this programme viable at the village level. As each mother has recognized the importance of assessing her child's growth and development monthly, she has benefited from the regular contact with the health services, and with agriculture and other government outreach services. This will continue to be the cutting edge of community nutrition and health improvement in Indonesia in the decade ahead.

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