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THE STRENGTHENING OF THE COMMUNITY HEALTH RENEWAL MOVEMENT AND PRIMARY HEALTH CARE IN THE UNDERSERVED AREAS OF MALAYSIA.

Professor Paul C.Y. Chen

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UNITED NATIONS CHILDREN'S FUND

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SUMMARY OF MAIN RECOMMENDATIONS

I. PENINSULAR MALAYSIA

(1) Looking at the extent of underserved areas (Section 2), the 11 states can be categorised into 3 groups:

- Category "A", where the problem is "negligible" as in Perlis, Penang, Melaka and Selangor;
- Category "B", where the problem is "moderate" as in Johor, Kedah, Perak and Negri Sembilan (with 5 - 14% of the people underserved);
- Category "C", where the problem is "moderately severe" as in Kelantan, Pahang and Trengganu (with 15 - 20% underserved).

(2) The majority of underserved areas are close to served areas. About 40% of the villages have a population of less than 100 and 25% have less than 50 people (Section 3).

(3) The majority of underserved areas are economically depressed, with relatively poor communications, and are peopled by highly traditional communities (Section 3).

(4) A two-tier system of health care can apply (Section 4). However, only the peripheral *klinik desa* tier needs to be introduced into the underserved areas of Peninsular Malaysia as the health centre tier in most instances will already be available in currently served areas (Fig. 6).

(5) At the peripheral level 3 types of *klinik desa* can be used according to population density, the proximity of the nearest static health facilities, accessibility, the health and socio-economic and

developmental status of the area (Section 5.1 and 5.3).

(a) One person *klinik desa*, *Klinik Desa* (I) manned by one *jururawat desa* for populations of 500 or more.

(b) Two person *klinik desa*, *Klinik Desa* (II) manned by two *jururawat desa* where work loads are sufficient.

(c) A *Modified Klinik Desa* which consists of a *Klinik Desa* (I) or a *Klinik Desa* (II) together with a mobile team based there, the mobile element consisting of the hospital assistant and 1 *jururawat desa* and the public health overseer (sanitarian) who can keep his own mobile schedule. The *klinik desa* with the mobile team would require a store for materials and a means of transportation be it a vehicle, boat, scooters or bicycles. The hospital assistant should also be the driver and be paid for this. The public health overseer will be temporary and can be moved to the next *klinik desa* as soon as his primary tasks are complete.

(6) The building type (Section 5.1) could be:

(a) Standard *Klinik Desa* for one person or two persons with the possibility that at a one person *Klinik Desa* the extra house be for a temporary public health overseer temporarily attached for a length of time to the *Klinik Desa* or for supervisory staff who come by on regular visits.

(b) *Kampung* type house built by the people with funds channelled through the District Medical Officer.

(c) In either instance it would be useful if it were built on tall wooden stilts so that the ground floor can be used as additional storage, clinic or meeting space. The building should, if possible, blend with the surroundings.

II. SABAH AND SARAWAK

(1) The magnitude of the problem is much greater with 41.2% and 68.1% of the people living in the underserved areas in Sabah and Sarawak respectively. Many underserved areas are far from currently served areas and face major problems in communications and transportation (Fig. 5, Sections 2 and 3).

(2) A two-tier system can also apply. However for historical and geographical reasons both the core health centre units and the peripheral *klinik desa* will be of a somewhat different design from what is being implemented in Peninsular Malaysia (Fig. 7, Section 4).

(3) At the core of the two-tier system are health centre units which may have a doctor and a dental surgeon, Phase II Health Centre (Sabah-Sarawak type), or be a down-graded variety without a doctor or a dental surgeon, Phase I Health Centre (Sabah-Sarawak type) (Fig. 8, Section 5).

(4) At the peripheral level 3 types of *klinik desa* can be used according to population density, the proximity of the nearest static health facility, accessibility, and the health, socio-economic and developmental status of the area (Section 5.3).

(a) One person *klinik desa*, *Klinik Desa* (I) manned by a junior hospital assistant, or a *jururawat masyarakat* - Sarawak - or a rural health nurse - Sabah. Population served would be 500 or more.

(b) Two person *klinik desa*, *Klinik Desa* (II) (Sabah-Sarawak type) manned by a junior hospital assistant and a *jururawat masyarakat* or rural health nurse or a combination of a junior hospital assistant and a sanitarian (rural health supervisor) or a *jururawat masyarakat*/rural health nurse with a sanitarian. In any case the sanitarian will be temporary and be moved once his tasks are completed (Fig. 9, Section 5.2).

(c) A *Modified Klinik Desa* (Sabah-Sarawak type) which in principle consists of *Klinik Desa* (I) or (II) together with a mobile health team based there (Fig. 10 and 11, Section 5.2). This will be manned by a hospital assistant, a junior hospital assistant, 2 *jururawat masyarakat* or rural health nurse, and a sanitarian (rural health supervisor) with a mobile team known as the village health team and consisting of the junior hospital assistant alternating with the hospital assistant, one *jururawat masyarakat* or rural health nurse, and the sanitarian, who can keep his own mobile schedule. As in Peninsular Malaysia the sanitarian is temporarily located here and can be relocated in an adjacent *klinik desa* as soon as he has completed his primary tasks in that area.

(5) The building type could be:

(a) Standard type *Klinik Desa* (Sarawak type) as a *Modified Klinik Desa* (Sabah-Sarawak type), down graded versions for *Klinik Desa* (II) and *Klinik Desa* (I) and standard type Health Centre (Sarawak type) for Phase I Health Centre (Sabah-Sarawak type). However, minor modifications to allow for integration of all three designs is required and have been incorporated into Fig. 8, 9, 10 and 11 (Section 5.2) for adaptation and adoption.

(b) *Kampung* type house built by the people with funds channelled through the Area Medical Officer (Sabah) or the Divisional Medical Officer (Sarawak).

(c) Whether the building is put up by the government or by the people, it should be built on tall wooden stilts, as is currently being done in Sarawak, so that the ground floor can be converted into additional storage, clinic and meeting space. In addition delivery rooms and rest-beds should be included in all *klinik desa* and health centres.

III. COMMUNITY HEALTH RENEWAL MOVEMENT

(1) In areas beyond the operational limits of static health facilities, the Community Health Renewal Movement and Primary Health Care (Section 6) should be further developed and strengthened (Section 6). The three basic elements of the Community Health Renewal Movement consist of:

- Mobile health teams,
- Organized community efforts, and
- Community education.

(2) Mobile health teams (Section 6.2) should consist of a hospital assistant or junior hospital assistant, a multipurpose community nurse (*jururawat desa, jururawat masyarakat* or rural health nurse) and a sanitarian (public health overseer or rural health supervisor).

(a) The mobile health team should visit no more than 2 to 3 villages per day.

(b) It should function from 2.00 p.m. to 9.00 p.m. and if possible stay overnight in some villages.

(c) It should train, utilise, supervise and evaluate village based health workers (V.B.H.W.).

(3) In all areas beyond the operational areas of the static *klinik desa*, village based health workers should be trained. These could include *bidan kampung*, youths, social leaders, religious leaders, school teachers, housewives, traditional medicine-men, headmen, village committee members (J.K.K.K.), policemen and others selected by the community (Section 6).

(4) In Sabah and Sarawak, due to the low population density and other factors, there is an even greater need to use village based health workers (V.B.H.W.).

(5) The identification of manpower resources and the selection of potential V.B.H.W. should be done by the community (Fig. 13,

Section 6). The training of V.B.H.W. should be done as close to their villages as is possible with the training carried out by a small team of specialised teachers together with the members of the mobile health team or flying doctor service team who will eventually be responsible for the use, supervision, retraining and evaluation of the V.B.H.W. in their area of operations (Section 6.4). These V.B.H.W. will have to be supervised, retrained and evaluated by

(a) the mobile team (village health team),

(b) the flying doctor service, and by

(c) reporting to the nearest *klinik desa* staff.

However, in the case of the flying doctor service, the *modus operandi* of the flying doctor service will need to be revised if the flying doctor service is to find sufficient time to supervise village based health workers in the underserved areas.

(6) Each V.B.H.W. should receive basic training in one of 4 special areas, namely, simple maternal and child care, first aid and simple curative medical care, home economics, and simple sanitation. These can be taken singly or in combination. In Peninsular Malaysia, there is practically no need to train any V.B.H.W. in simple curative medical care. However in Sabah and Sarawak this should be done particularly in the remoter areas and among nomadic tribes such as the Penan (Section 6.4).

(7) All V.B.H.W. should also receive additional training to function as "mobilisers" (Section 6.4).

IV NEED FOR FLEXIBILITY

(1) Due to the wide variations in the underserved areas, it is important to retain a high degree of flexibility not only in the variety of *klinik desa* and health centres used, the building types, but also in staff allocation and numbers.

(2) Along the same lines, a high degree of flexibility must be retained in the kind of manpower selected for training as village based health workers, as well as the combination of basic training given. For example, in Peninsular Malaysia, there is no need to train V.B.H.W. in simple curative medical care, whereas there is a need for this in the remoter areas of Sabah and Sarawak.

(3) There should also be flexibility in the *modus operandi* of mobile health teams who should keep working hours that are acceptable to the people. They should also be encouraged to be multipurpose and should be appropriately rewarded for these additional skills and responsibilities. One simple example is that of using the hospital assistant or junior hospital assistant as a driver.

V SOME UNANSWERED QUESTIONS

A brief outline of some important unanswered issues regarding the present health care delivery system are set out in Section 7.

1. RURAL HEALTH SERVICES IN MALAYSIA

1.1 Peninsular Malaysia

Prior to Independence in 1957, rural health services were virtually non-existent in Peninsular Malaysia. Through a series of five-year plans, a Rural Health Scheme has been developed. In its original form, it consisted of a three-tier system of:

(1) One main health centre for 50,000 people

(2) Four health sub-centres, each for 10,000 people, and

(3) Twenty midwife clinics, each for 2,000 people,

as shown in Fig. 1.

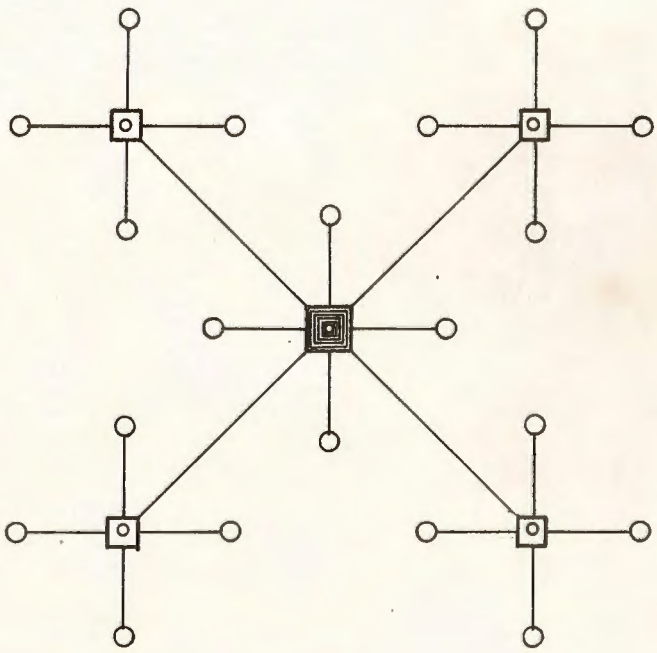
Following operations research carried out jointly with WHO in 1969 - 1971, it was decided from 1973 to gradually convert the present three-tier system to a two-tier system consisting of:

(1) One health centre for every 15,000 - 20,000 people, and

(2) One *klinik desa* - Peninsular type (rural community clinic) staffed by two multipurpose *jururawat desa* (community nurses) for every 3,000 - 4,000 people, as shown in Fig. 2.

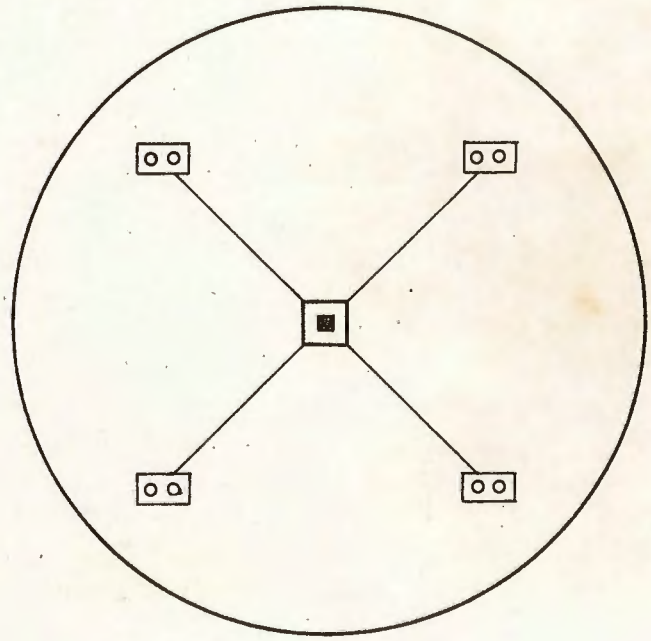
The two-tier system also meant an increase in staff in each health centre to cater for the additional workload and new duties, and the replacement of the single-purpose midwife with a multipurpose *jururawat desa* (community nurse). Consequently, nation-wide modifications in the rural health services are being undertaken by modifications in the buildings and the retraining of existing midwives and the recruitment of new staff.

Fig. 1: Schematic representation of a Three-tiered Rural Health Unit for 50,000 rural population in Peninsular Malaysia.



	Main Health Centre	(50,000 population)
	Health Sub-Centre	(10,000 population)
	Midwife Clinic cum Quarters	(2,000 population)

Fig. 2: Schematic representation of a Two-tiered Rural Health Delivery System for 15,000 to 20,000 rural population in Peninsular Malaysia.



Health Centre (15,000 - 20,000)

Klinik Desa with two Jururawat desa (community nurses) (3,000 - 4,000)

It is estimated that the two-tier system will only be fully implemented to cover the total population by 1995. The development of physical facilities during the period 1956 to 1979 is shown in Table 1. The staffing pattern of the original three-tier system is shown in Annex 1 while that of the newer two-tier system is shown in Annex 2.

To provide health care in remoter areas, a total of 26 mobile teams have been established in Peninsular Malaysia. Each team consists of a hospital assistant, a public health nurse, an assistant nurse, two attendants and a driver together with a vehicle. A further 14 mobile teams are in the process of being constituted.

1.2 Sarawak

Prior to 1970, rural health services in Sarawak were provided through static dispensaries, sub-dispensaries and maternal and child health clinics complemented by travelling dispensaries that move both by road and river to rural villages.

A static dispensary consists of a clinic for a hospital assistant, 4 - 8 rest-beds, a kitchen, a store and toilet facilities for patients. To all intents and purposes only curative services are provided. Static dispensaries are divided into 4 classes depending on their workload and remoteness. A Class 1 dispensary has a work load of 2,000 or more out-patient attendances a month and is manned by a senior hospital assistant and an assistant who could be another hospital assistant or a junior hospital assistant. The other three classes are all manned by hospital assistants, with or without an auxiliary such as a junior hospital assistant or a medical auxiliary assisting him, there being a total of

Table 1

Physical Facilities of the Rural
Health Services in Peninsular Malaysia
as of January 1980

States	Main Health Centre	Health Sub-centre	Midwife Clinic	*Klinik Desa*
Perlis	1	6	22	8
Kedah	7	27	131	46
Penang	4	12	44	15
Perak	12	40	146	43
Selangor	9	27	101	37
Negri Sembilan	3	16	65	30
Melaka	4	15	58	7
Johor	12	40	180	59
Pahang	7	30	125	65
Trengganu	4	17	57	36
Kelantan	6	28	89	49
Peninsular Malaysia	69	258	1,018	395

Source: Planning and Development Division,
Ministry of Health,
Kuala Lumpur.

34 dispensaries in Sarawak.

Sub-dispensaries are located in remote areas with a catchment population of less than 1,500 people and are staffed by a junior hospital assistant, a medical auxiliary (who has received 3 months of theoretical followed by 3 months of practical training in basic medical and health care) or an ulu dresser. It consists of a simple wooden building half of which is used as a clinic while the other half serves as quarters for the auxiliary, there being a total of 34 sub-dispensaries in Sarawak.

Maternal and child health (MCH) clinics were built and provided for by the various local authorities while the dispensaries were administered by the Medical Department. Since early 1979, these MCH clinics are gradually being handed over to the Medical Department. They are usually staffed by *jururawat masyarakat* (community nurses) similar to the *jururawat desa* of Peninsular Malaysia and the rural health nurse of Sabah. MCH clinics consist of simple wooden buildings half of which is used as a clinic while the other half serves as quarters for the community nurse. The variety of MCH clinics available in rural Sarawak is shown in Table 2.

Since 1977 a more comprehensive health care delivery system modified from the pattern in Peninsular Malaysia has been introduced. It is a two-tier system consisting of Health Centre (Sarawak) for 8,000 - 10,000 population and *Klinik Desa* (Sarawak) for 1,500 - 2,000 population. The Health Centre (Sarawak) differs from that in Peninsular Malaysia-in that it is a smaller unit and is manned by supervisory technical staff of the higher grade such as public health inspector, senior hospital assistant, and public health nurse. The *Klinik Desa* (Sarawak) is equivalent to a *Modified Klinik Desa** that contains both a *jururawat masyarakat* based in the clinic and a mobile health team that covers the area beyond the

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*for definitions see Annex 3.

Table 2

Type of MCH Clinic Available in Rural Sarawak as of April 1980

	Type of MCH Clinic	Division							Total
		I	II	III	IV	V	VI	VII	
1.	In or near Health Centre	3	1	-	-	-	1	-	5*
2.	*Klinik Desa*	5	8	3	10	4	5	7	42
3.	In or near dispensary	5	9	3	3	2	5	4	31
4.	In or near sub-dispensary (with junior hospital assistant or medical auxiliary)	3	2	3	2	3	1	-	14
5.	Isolated MCH clinic	13	2	9	1	-	3	1	29
6.	Mobile MCH clinic (by nearest static midwife)	4	4	7	5	3	2	-	25
7.	With travelling dispensary	5	1	1	2	1	2	-	12
8.	With mobile village health team	8	-	5	4	8	1	6	32
9.	With flying doctor service	42	43	32	44	14	27	52	254

* 3 Health Centres have doctors.

Source: M.C.H. Division,
Medical Department,
Sarawak.

operational limits of the static *klinik desa*. The building consists of a general office, a clinic for the hospital assistant, a maternal and child health section, an office for the rural health supervisor (sanitarian), a laboratory, a delivery room, two antenatal/postnatal beds, four rest-beds and a store. Quarters for the staff are provided in the vicinity of the *klinik desa*.

Since 1978 a new strategy has been introduced in which a *klinik desa* without a mobile unit is being developed. This *klinik desa*, which is similar to the *klinik desa* of Peninsular Malaysia, will be manned by two auxiliaries consisting of either a *jururawat masyarakat* (J.M.) and a junior hospital assistant (J.H.A.) or a J.M. and a sanitarian (R.H.S.). Such a *klinik desa* will serve a population of less than 1000 people.

To supplement static facilities, travelling dispensaries manned by a hospital assistant or a medical auxiliary move by road or river from their bases in district hospitals, dispensaries, and sub-dispensaries to provide curative services to rural villages. In a few instances, the travelling dispensary is able to include a *jururawat masyarakat* who is then able to provide basic maternal and child health care, but by and large, travelling dispensaries are curative in orientation.

Since 1973, a flying doctor service has been used to cover some of the remote villages in Sarawak. Presently three helicopters are on charter to the flying doctor service and cover a total of 254 stations, 183 being visited once a month and 71 being visited once every 2 months. Each team consists of a doctor, a hospital assistant, and two *jururawat masyarakat* or midwives.

1.3 Sabah

Rural health services are provided through static dispensaries and maternal and child health clinics. Static dispensaries are manned by hospital assistants, there being 30 dispensaries in rural Sabah. There are two classes of maternal and child health clinics in Sabah, a large type called "health centres*", and a smaller type known as a village group sub-centre (VGSC) each manned by a single rural health nurse (RHN) who provides simple curative rural medicine and maternal and child care, there being a total of 227 VGSC in Sabah. The larger "health centre" is manned not only by a RHN but also by a staff nurse, there being a total of 17 "health centres" in Sabah. In some instances dispensaries and VGSC's are located in different nearby villages, while in others VGSC's and dispensaries are combined.

As an interim measure, a flying doctor service is operated by the Medical Department and the Sabah Foundation each using a helicopter. A total of 113 stations are covered, 63 by the Sabah Foundation and 50 by the Medical Department. Each team consists of a doctor, a hospital assistant, a trained assistant nurse and a rural health nurse, each station being visited once every four to six weeks.

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*for definition see Annex 3.

2. COVERAGE OF RURAL HEALTH SERVICES

2.1 Definitions

In this report the term undercoverage and underserved will be used interchangeably as if they were synonyms.

In the survey of underserved areas carried out in 1977, the criteria of whether a population was "served" or "underserved" was based on geographical distances. A population was considered "served" if it was within one mile of a static health facility or up to 3 miles if a metalled road connected it to the nearest static health facility. On the basis of the findings of the operations research carried out, the grounds for selecting these arbitrary criteria are sound. However it should be noted that, although these criteria are pragmatic and sound, "undercoverage" or "underservice" have to be defined in terms of a number of ever-changing circumstances including the socio-economic status and developmental stage of a country as well as the "expectations" and political awareness of its people. In other words, the definition is a changing one suited only for a particular point in the developmental history of a country. As development, "expectations" and political awareness changes so must the criteria of "underservice".

The awareness of the need for differing definitions, that is a dynamic definition, is illustrated by the use of a second set of definitions for Sabah and Sarawak. In these 2 states, an area is considered to be served if it is within 3 miles of a static health facility regardless of the kind of communication available.

2.2 Peninsular Malaysia

On the basis of the criteria described earlier it was reported, in a survey of underserved areas carried out in 1977 in 47 districts in Peninsular Malaysia which are currently covered under the Applied Food and Nutrition Programme (AFNP), that 2,315 villages (24%) were found to be underserved and that the estimated population in these underserved villages was 446,760 comprising about 12% of the total estimated rural population as shown in Table 3. In a follow-up survey, carried out in 1979, of the remaining 29 districts not covered by the AFNP, which were thus better developed districts, it was reported that undercoverage was relatively low being 0.4% of all villages in these districts if mines, estates, orang asli settlements and land schemes were excluded (Table 4).

From the above it will be noted that the states of Pahang (20%), Kelantan (16%) and Trengganu (15%) are particularly underserved, and that even though initial survey results of some districts in Selangor (4 districts - 18%), Johor (2 districts - 17%) and Kedah (6 districts - 12%) indicate that more than 10% of the rural population in these AFNP districts are underserved.

Fig. 3 shows the location of various static health facilities, served areas and 33 underserved villages in the district of Baling, Kedah, while Fig. 4 illustrates the relative location of 35 underserved villages in the district of Dungun, Trengganu, Peninsular Malaysia. It is possible that the situation may have improved since 1977 and that underserved areas in some states have decreased. Unofficial indications from

Table 3

Summary of underserved villages in
47 districts of Peninsular Malaysia (Stage I Survey 1977)

States		Total harmonised villages	Total **rural population (MEP : 1976)	Underserved villages (including estates, mines and orang asli) after redelineation			
				Village	(%)	Population (MEP : 1974-77)	(%)
1. Perlis	1 : 1*	264	134,342	5	(2%)	1,489	(1%)
2. Kedah	6 : 11	987	396,361	189	(19%)	48,129	(12%)
3. Perak	7 : 9	1,633	904,320	223	(14%)	63,178	(7%)
4. Selangor	4 : 9	523	355,396	134	(26%)	62,376	(18%)
5. Negri Sembilan	2 : 6	322	86,704	36	(11%)	4,816	(6%)
6. Melaka	3 : 3	591	361,814	17	(3%)	3,576	(1%)
7. Johor	2 : 9	322	91,495	153	(48%)	15,845	(17%)
8. Pahang	7 : 9	1,479	374,513	545	(37%)	74,968	(20%)
9. Trengganu	6 : 6	1,085	384,931	244	(22%)	58,088	(15%)
10. Kelantan	9 : 9	2,376	709,897	769	(32%)	114,295	(16%)
Total	47 : 77	9,582	3,799,773	2,315	(24%)	446,760	(12%)

* Distribution of no. of districts in comparison to total districts (administrative districts).

** Rural population excluding towns with population of 10,000 and above.

Source: "Proceedings of National Workshop on Community Health Movement", Kuala Lumpur, May 1978.

Table 4

Summary of underserved villages in
29 districts of Peninsular Malaysia (Stage II Survey 1979)

State	No. of districts involved: Total number	Total harmonised villages	Total population	Underserved villages (excluding mines, estates, orang asli settlements, land schemes)			
				Village	%	Population	%
1. Perlis	*0 : 1	-	-	-	-	-	-
2. Kedah	5 : 11	1,322	524,627	14	(1.1)	2,393	(0.4)
3. Pulau Pinang	5 : 5	703	544,997	0	(0.0)	0	(0.0)
4. Perak	2 : 9	424	242,551	4	(0.9)	88	(0.2)
5. Selangor	5 : 9	518	577,967	1	(0.2)	43	(0.007)
6. Negri Sembilan	4 : 6	850	426,961	21	(2.5)	3,113	(0.7)
7. Melaka	0 : 3	-	-	-	-	-	-
8. Pahang	2 : 9	268	125,720	26	(9.7)	3,789	(3.0)
9. Johor	6 : 9	2,399	1,045,265	40	(1.7)	4,557	(0.4)
10. Trengganu	0 : 6	-	-	-	-	-	-
11. Kelantan	0 : 9	-	-	-	-	-	-
Total	29 : 77	6,484	3,488,088	106	(1.6)	13,983	(0.4)

* Distribution of no. of districts in comparison to total districts in area.

Source: M.C.H. Division, Ministry of Health, Kuala Lumpur.

Fig. 3: Map of Baling, Kedah, Peninsular Malaysia.

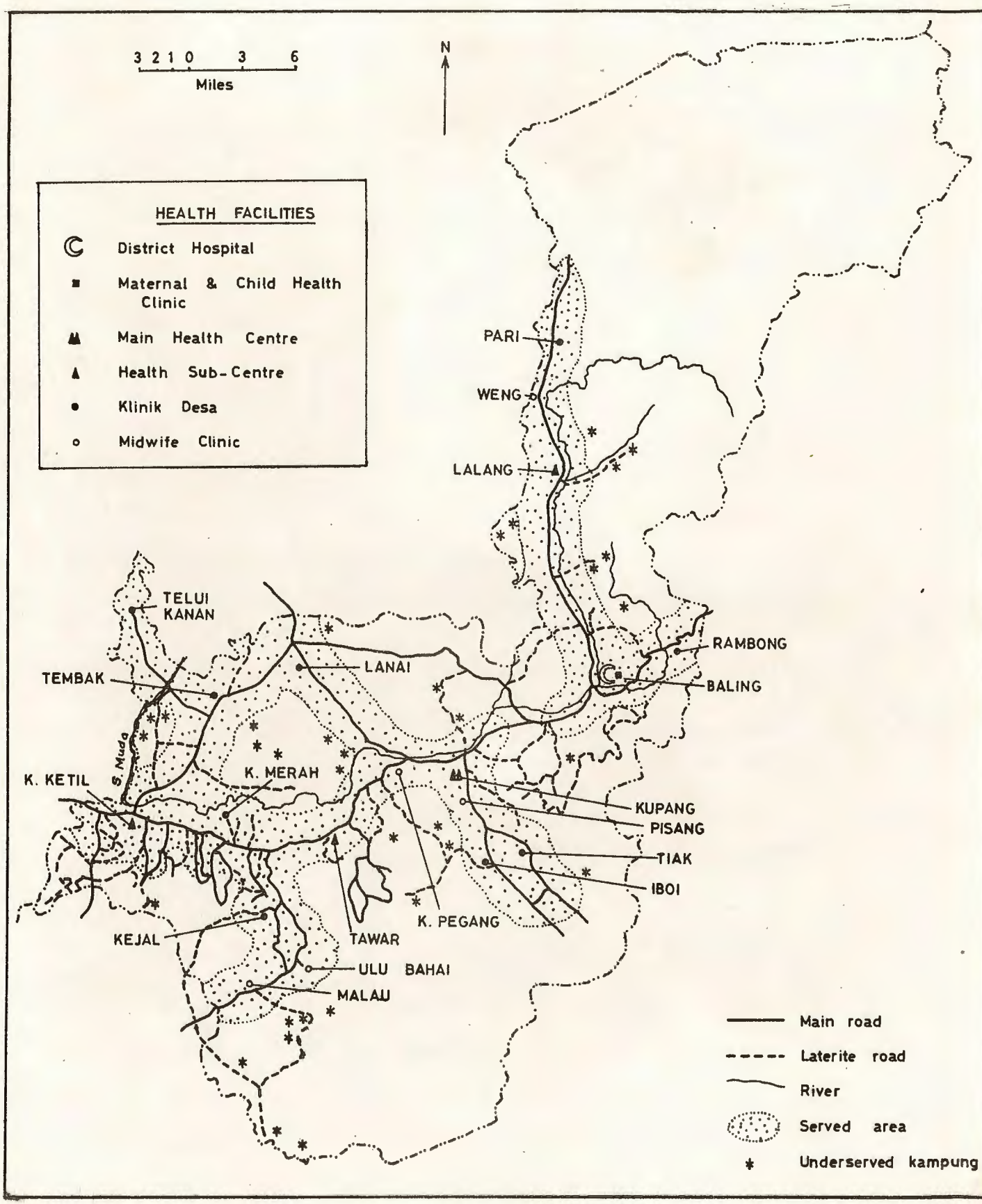
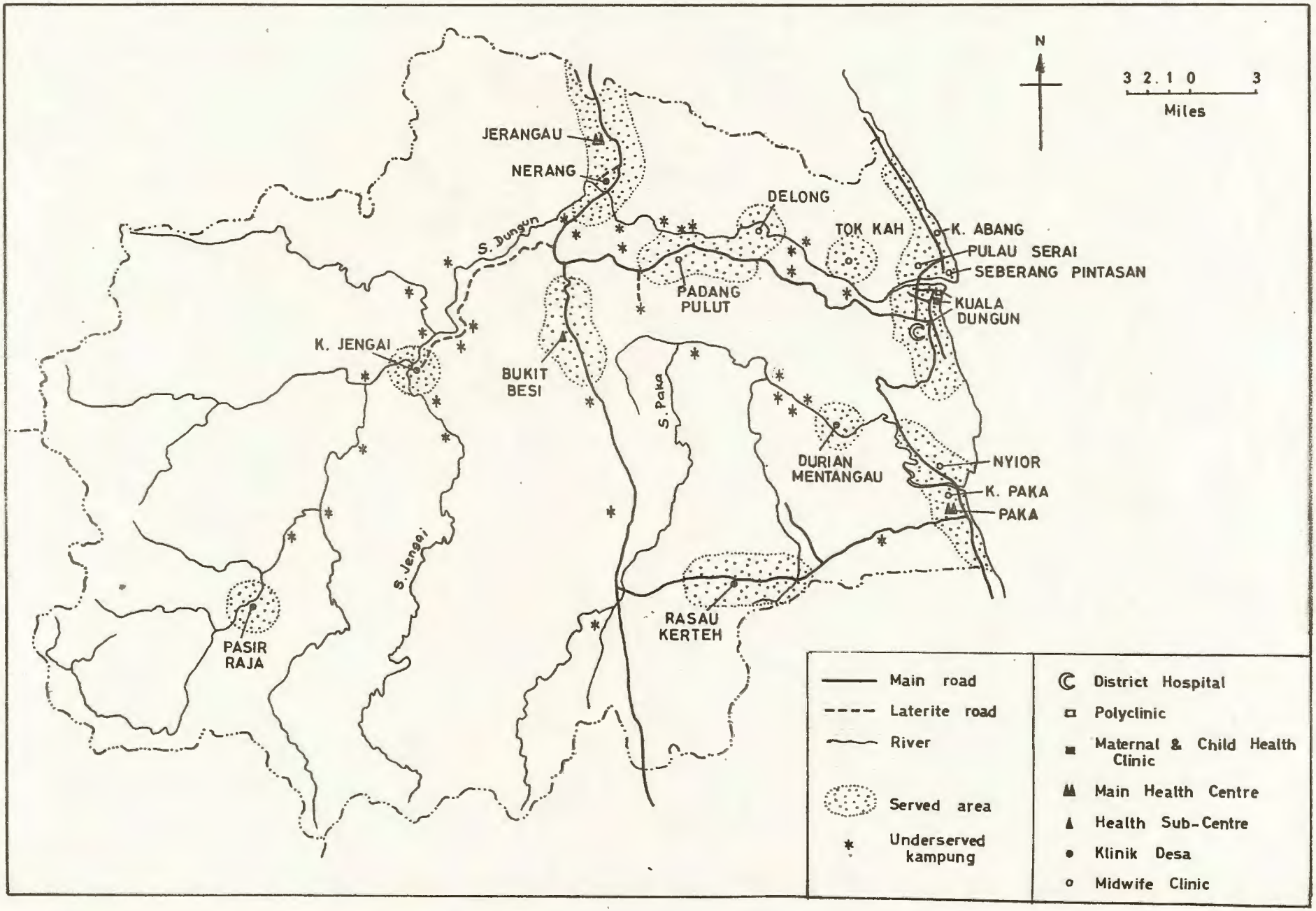


Fig. 4: Map of Dungun, Trengganu, Peninsular Malaysia.



Selangor are that the 4 districts, initially reported to have an average of 18% of the population living in underserved areas, now have "negligible" proportions of the population living beyond the geographical criteria mentioned. Nevertheless it can be assumed that the 3 east coast states of Pahang, Kelantan and Trengganu are particularly underserved, in the states of Johor, Kedah, Perak and Negri Sembilan moderate sized pockets of the population remain in underserved areas, and that only the states of Perlis, Penang, Melaka and Selangor have "negligible" populations that live beyond the geographical criteria mentioned.

On the basis of the extent of the problem the 11 states in Peninsular Malaysia can then be divided into 3 broad groups:

(1) Group "A", where the problem is "negligible", namely, Perlis, Penang, Melaka and Selangor.

(2) Group "B" , where the problem is "moderate" as in Johor, Kedah, Perak and Negri Sembilan.

(3) Group "C", where the problem is "moderately severe" as is found in Kelantan, Pahang and Trengganu.

2.3 Sabah and Sarawak

In comparison to Peninsular Malaysia, the problem of under-coverage in Sabah and Sarawak is a much larger one. Using the less stringent criteria of defining served populations as any that are within 3 miles of any static health facility irrespective of the existence of a metalled road or otherwise, it was reported, in a survey carried out in

1979, that 65.2% of villages containing an estimated 385,403 (41.2%) of the population of Sabah could be considered as "geographically underserved" and that 74.7% of villages containing an estimated 563,942 (68.1%) of the population of Sarawak would similarly be "geographically underserved" (Table 5). Sabah and Sarawak can thus be placed into a fourth category of Group "D" where problems are relatively "severe".

Wide geographical differences in the extent of the problem will be noted even within Sabah and Sarawak (Tables 6 and 7). For example, in Sabah, the district of Labuan is relatively well served and only an estimated 4.8% of the population are "geographically underserved". On the other hand the remoter district of Labuk Sugut has an estimated 90.4% of its population living in underserved areas. In Sarawak, the variation is less wide varying from a low of 38.7% for the district of Simunjan in the First Division to a high of 82.4% for the district of Limbang in the Fifth Division. Thus services, even though thinly spread, are more evenly spread in Sarawak than in Sabah where differences are more extreme. Further, a more comprehensive service that includes curative medicine, maternal and child health care, environmental sanitation and simple dental extraction is provided in most of the community health clinics (*klinik desa* - Sarawak type) than is available in Sabah. In Sabah maternal and child care and curative medicine are provided to a larger proportion of the rural population but environmental sanitation services as well as simple dental emergency extraction is relatively less available.

Table 5

Extent of undercoverage based on geographical delineation

Region	No. (%) of villages geographically underserved	No. (%) of people geographically underserved	Mean size of underserved villages
Peninsular Malaysia*	2,315 (24.0%)	446,760 (12.0%)	193
Sabah@	2,151 (65.2%)	385,403 (41.2%)	179
Sarawak@	3,702 (74.7%)	563,942 (68.1%)	152
Total	8,168	1,396,105	

* based on geographical delineation of one mile from nearest facility if non-metalled road and 3 miles from nearest facility if metalled road with redelineation of up to $\frac{1}{4}$ mile based on utilization of services (Phase I Survey of 47 out of 77 districts in 1977).

@ based on geographical delineation of 3 miles from nearest facility irrespective of the type of communications available (Survey in 1979).

Table 6: Summary of underserved kampung (villages) in 23 districts of Sabah (Survey of 1979).

District/Area health unit	Total number of kampung	Population	Underserved kampung by geographical delineation 1979			
			Kampung	(%)	Population	(%)
Kota Kinabalu	101	109,995	69	(68.3)	8,721	(8.0)
Papar	169	50,090	72	(42.6)	11,925	(23.8)
Penampang	145	21,349	62	(42.8)	3,884	(18.2)
I Kota Kinabalu	**415**	**181,434**	**203**	**(48.9)**	**24,530**	**(13.5)**
Tuaran	164	57,813	122	(74.4)	12,912	(22.3)
Ranau	166	32,170	121	(72.9)	14,944	(46.5)
Kota Belud	143	50,436	88	(61.5)	18,661	(37.0)
II Tuaran	**473**	**140,419**	**331**	**(70.0)**	**46,517**	**(33.2)**
Beaufort	119	47,207	85	(71.4)	12,100	(25.6)
Kuala Penyu	33	16,667	22	(66.7)	9,215	(55.3)
Sipitang	72	14,682	45	(62.5)	4,791	(32.6)
III Beaufort	**224**	**78,556**	**152**	**(67.9)**	**26,106**	**(33.2)**
Keningau	190	33,732	122	(64.2)	14,815	(43.9)
Tenom	130	33,188	80	(61.5)	11,710	(35.3)
Tambunan	97	16,985	41	(42.3)	2,946	(17.3)
Pensiangan	171	11,632	141	(82.5)	7,561	(65.0)
IV Keningau	**588**	**95,537**	**384**	**(65.3)**	**37,032**	**(38.8)**
Kudat	189	42,036	169	(89.4)	24,785	(59.0)
Kota Marudu	136	30,554	119	(87.5)	16,361	(53.5)
Pitas	156	20,884	138	(88.5)	13,886	(66.5)
V Kudat	**481**	**93,474**	**426**	**(88.6)**	**55,032**	**(58.9)**
Sandakan	202	99,030	106	(52.5)	31,070	(31.4)
Labuk Sugut	285	37,849	193	(67.7)	34.244	(90.5)
Kinabatangan	116	21,793	106	(91.4)	10,250	(47.0)
VI Sandakan	**603**	**158,672**	**405**	**(67.2)**	**75,564**	**(47.6)**
Tawau	188	87,760	86	(45.7)	12,716	(14.5)
Lahad Datu	110	43,057	46	(41.8)	7,369	(17.1)
Semporna	169	34,201	115	(68.0)	12,005	(35.1)
VII Tawau	**467**	**165,018**	**247**	**(52.9)**	**32,090**	**(19.2)**
Labuan	48	24,885	3	(6.3)	1,199	(4.8)
VIII Labuan	**48**	**24,885**	**3**	**(6.3)**	**1,199**	**(4.8)**
SABAH	3,299	937,995	2,151	(65.2)	298,070* add 30% (387,491)	(31.6) (41.2)

Table 7: Summary of underserved kampung (villages) in 24 districts of Sarawak (Survey of 1979).

Coverage / District / Division		Total number of kampung	Population	Underserved kampung by geographical delineation 1979			
				Kampung	(%)	Population	(%)
I	Lundu	127	23,620	88	(69.3)	15,171	(64.2)
	Bau	99	29,050	70	(70.7)	18,189	(62.6)
	Kuching	323	110,855	211	(65.3)	70,092	(63.2)
	Serian	235	61,627	177	(75.3)	42,672	(69.2)
	Simunjan	144	29,065	80	(55.6)	11,253	(38.7)
	I	**928**	254,217	**626**	**(67.5)**	**157,377**	**(61.9)**
II	Simanggang	401	59,786	337	(84.0)	42,693	(71.4)
	Saribas	219	34,416	155	(70.8)	16,391	(47.6)
	Kelaka	242	26,655	185	(76.4)	21,444	(80.5)
	Lubok Antu	179	17,227	111	(62.0)	10,519	(61.1)
	II	**1,041**	138,084	**788**	**(75.7)**	**91,047**	**(65.9)**
III	Sibu	268	29,014	223	(83.2)	21,144	(72.9)
	Kanowit	256	26,699	161	(62.9)	15,919	(59.6)
	Mukah	240	32,424	219	(91.3)	21,658	(66.8)
	Oya/Dalat	90	17,504	62	(68.9)	11,094	(63.4)
	III	**854**	105,641	**665**	**(77.9)**	**69,815**	**(66.1)**
IV	Bintulu	304	49,172	229	(75.3)	31,620	(64.3)
	Miri	230	43,930	185	(80.4)	37,169	(84.6)
	Baram	207	36,420	167	(80.7)	28,553	(78.4)
	IV	**741**	129,522	**581**	**(78.4)**	**97,342**	**(75.2)**
V	Limbang	164	26,080	122	(74.4)	21,486	(82.4)
	Lawas	118	17,963	69	(58.5)	9,122	(50.8)
	V	**282**	44,043	**191**	**(67.7)**	**30,608**	**(69.5)**
VI	Sarikei	176	24,457	122	(69.3)	18,568	(75.9)
	Binatang	87	10,958	46	(52.9)	5,090	(46.5)
	Matu/Daro	57	25,672	38	(66.7)	17,938	(69.9)
	Julau	256	21,737	211	(82.4)	17,694	(81.4)
	VI	**576**	82,824	**417**	**(72.4)**	**59,290**	**(71.6)**
VII	Kapit	274	37,823	230	(83.9)	30,123	(79.6)
	Song	173	17,040	129	(74.6)	13,624	(80.0)
	Belaga	91	18,351	75	(82.4)	14,716	(80.2)
	VII	**538**	73,214	**434**	**(80.7)**	**58,463**	**(79.9)**
	SARAWAK	4,960	827,545	3,702	(74.6)	563,942	(68.1)

3. CHARACTERISTICS OF UNDERSERVED AREAS

3.1 Size of villages

Villages in the underserved areas can be characterised as being small, the mean size varying from a high of 193 people in Peninsular Malaysia to a low of 152 people in Sarawak (Table 5). However this in itself is misleading and it has been estimated that about 40% of villages in the underserved areas of Sabah and Sarawak have a population of less than 100 people (i.e. less than 20 households). In the remote district of Labuk Sugut, Sabah, 70% of underserved villages have a population of less than 100 while 36% have less than 50 people, the average size of a village being 68 people.

Even in the more densely populated state of Johor, Peninsular Malaysia, underserved areas are characterised by small villages. As shown in Table 8, of 681 underserved villages in the 7 districts of Johor surveyed in 1979,40% have less than 100 people while 24% have less than 50 people.

3.2 Geographical spread of villages

Villages in the underserved areas are not only small but also scattered over a wide geographical area. In Peninsular Malaysia the three states with the highest proportion of underserved areas, namely, Pahang, Kelantan and Trengganu,are also the states with the lowest population density. However, the problem is more acute in Sabah and Sarawak where the population density is 28 persons per square mile and

Table 8

Population size of 681 villages
in the underserved areas of Johor,
Peninsular Malaysia

District	No. of villages with population of:			Total no. of villages
	0 - 49	50 - 99	100 or more	
Johor Bahru	29	16	78	123
Muar	23	16	59	98
Batu Pahat	35	32	92	159
Kluang	32	18	70	120
Segamat	27	8	55	90
Pontian	18	18	55	91
Johor	164 (24%)	108 (16%)	409 (60%)	681 (100%)

23 persons per square mile respectively compared with 195 persons per square mile in Peninsular Malaysia.

However the variation from area to area within a state can be very wide. For example the population density in the First Division of Sarawak is 118 persons per square mile whereas that in the Seventh Division is an average of 4 persons per square mile (Table 9).

3.3 Economically depressed

Underserved areas are mainly located in economically depressed areas and peopled by rural agricultural subsistence communities who are poor. As shown in Table 10, an economic survey carried out in 1970 in Peninsular Malaysia indicated that 77% of rural farmers are below the poverty line, the poverty line being defined as income required for minimum subsistence and takes into account minimum nutritional and other non-food requirements of each household to sustain a decent standard of living. The two largest groups in poverty in the rural areas in 1970 were rubber smallholders who accounted for 29% of the total in poverty and padi cultivators who made up 16%.

Evaluation of the quantitative dimensions of poverty in Sabah and Sarawak is hampered by lack of statistical information. *Prima facie* evidence suggests that the incidence of poverty is much higher than in Peninsular Malaysia as a significantly larger proportion of the population is engaged in agriculture which is characterised by lower yields than is found in Peninsular Malaysia.

Table 9

Population density in the State of Sarawak

Division	Population (1970)	Area (square miles)	Population per sq. mile
First	406,952	3,434	118
Second	160,385	3,966	40
Third	201,269	4,976	40
Fourth	159,880	15,036	11
Fifth	36,731	3,008	12
Sixth	86,829	2,595	33
Seventh	60,145	15,033	4
Total	1,112,191	48,048	23

Table 10

Peninsular Malaysia: Incidence (%) of poverty by characteristics of heads of households,* 1970

Occupation	Total	Rural	Urban
Farmers	76.4	77.0	57.3
Farm workers	63.8	64.7	47.9
Production	36.0	42.5	27.8
Sales	30.5	41.1	19.6
Services	27.0	30.5	23.6
Professional/technical	10.6	14.6	6.0
Administrative/managerial	9.5	15.4	2.4
Clerical	10.7	14.2	8.5
All occupations	49.3	58.6	24.6
Education			
None	62.3	69.4	37.0
Some primary	53.7	60.9	32.5
Completed primary	47.7	54.6	26.3
Lower secondary (Forms 1 - 3)	19.0	25.5	12.4
Some upper secondary	7.6	8.7	6.4
Completed school certificate or higher	3.3	4.1	2.8
All education levels	49.3	58.6	24.6

* The percentages for each characteristic refer to varying numbers of households in the sample for which information on sector or occupation or education was available.

Source: Malaysia (1976) Third Malaysia Plan 1976 - 1980, p. 162.

In Sabah, an estimated 80% of the agricultural labour force are smallholder farmers with some 60% being padi growers. In Sarawak, most of the agricultural labour force is engaged as subsistence padi smallholders.

3.4 Poor communications

Underserved areas particularly in Sabah and Sarawak and to an extent in Pahang, Kelantan and Trengganu are located in relatively inaccessible parts of the country. A comparison of the location of the 33 underserved kampungs in the district of Baling, Kedah, Peninsular Malaysia (Fig. 3) and that of the villages in the district of Labuk Sugut, Sabah (Fig. 5) will illustrate the differences in the availability of roads in Peninsular Malaysia on the one hand and Sabah and Sarawak on the other. In Sabah and Sarawak there are many areas where roads are non-existent and riverine and air transportation are the only means available. It is estimated that riverine transportation costs approximately 5 times more per mile than road transportation and is 5 times slower. Consequently families living in such areas where roads are not available are not only likely to be poorer but are also more likely to be severely restricted in their ability to move in search of medical and health care. Table 11 shows the number of "safe" deliveries conducted by trained midwives and the number of "unsafe" deliveries conducted by untrained traditional birth attendants in the Tongod area, Kinabatangan, Sabah, during 1979. It will be noted that approximately 50% of the people in the area live within a 5 hour journey of the

Fig. 5: Map of Labuk Sugut, Sabah.

Tongod Dispensary while the remaining 50% will take from 6 hours to $1\frac{1}{2}$ days to reach the Tongod Dispensary. Further it will be noted that all "safe" deliveries occurred within a 30 minute (one and a half mile) distance of the Tongod Dispensary (Table 11) indicating that poor communications is a major problem in the delivery of health care in underserved areas particularly of Sabah and Sarawak and to a lesser extent in Pahang, Kelantan and Trengganu.

Table 12 shows the availability of roads and riverine transportation in a sample of 191 villages in Sarawak. It will be noted that 38% of villages are accessible by road but that only 32% are accessible throughout the year, and that 74% are accessible by river but that only 62% throughout the year, leaving at least 6% of villages cut off during parts of the year. It will also be noted that only 4% to 10% of all villages have a public transportation system in the form of a taxi, bus or public boat, and that all forms of public transportation systems added together account for only a total of 45 (24%) of the 191 villages surveyed. Consequently, the single most important factor in the development of a health care system in the underserved areas of Sabah and Sarawak in particular, is the problem posed by the lack of a readily available system of communication.

3.5 Highly traditional communities

For a number of reasons, communities in the underserved areas tend to be highly traditional and conservative. Most are agricultural subsistence communities. A few are fishing villages while a small number

Table 11

Number of "safe" and "unsafe" deliveries conducted in area around Tongod Dispensary and VGSC, Kinabatangan, Sabah, in 1979@

Travelling time	Name of village	No. of deliveries		
		"Safe"	"Unsafe"	Total
0 - ½ hr	Tongod	13	18	31
1 hr	Nikupang and Teck Heng Loong	-	15	15
1½ hr	Bulot and Malagatan Kecil	-	10	10
2 hrs	Sogosogo and Sinoa	-	3	3
4 hrs	Ketumbalang	-	3	3
6 hrs	Tempasak, Menanam and Lang Kabang Bahru	-	42	42
8 hrs	Liam Pang Pang	-	2	2
1½ days	Minisu and Malagatan Besar	-	18	18
	Total	13 (10%)	111 (90%)	124

@ Obtained by examining records of Registrar of Births.

Table 12

Summary of Communication Resources in 191 underserved villages in Sarawak according to ethnicity

Ethnic group	No. of villages surveyed	No. (%) of villages accessible by:				No. (%) of villages with:					
		By road	By road all year	By river	By river all year	Private motor car	Taxi	Public bus	Express public boat	Passenger boat	Private boat
Iban	97	34	39	80	67	15	1	1	4	6	65
Bidayuh	23	18	14	8	5	8	-	5	-	-	2
Malay	15	5	4	14	11	2	1	-	1	5	13
Chinese	8	6	6	5	5	5	3	2	2	2	4
Others	42	7	6	32	27	3	1	-	2	5	24
Mixed	6	2	2	3	3	2	1	1	1	1	3
Total	191 (100%)	72 (38%)	61 (32%)	142 (74%)	118 (62%)	35 (18%)	7 (4%)	9 (5%)	10 (5%)	19 (10%)	111 (58%)

consist of migrant families working with adjacent lumber companies or large-scale agricultural estates.

The majority of communities are long established traditional societies with a distinct social organization and local leadership pattern. Table 13 shows the number and percentage of 191 villages in Sarawak with various non-government social leaders. For all ethnic groups 84% of villages had traditional headmen, 34% had one or other kind of religious leader, 52% had traditional birth attendants and 49% had traditional medicine-men of one variety or other. This is inspite of the fact that 40% of villages have less than 100 people.

The proportion of deliveries conducted by traditional birth attendants in underserved areas varies. In Peninsular Malaysia traditional birth attendants are responsible for 60% to 70% of deliveries in the underserved areas while in Sabah and Sarawak the proportion is as high as 80% to 100%. For example in the underserved areas around the Tongod Dispensary, Kinabatangan, Sabah, all deliveries are conducted by traditional birth attendants.

In the underserved areas, families tend to be closely related with a well established system of mutual support and help. In long house communities seen in Sarawak and parts of Sabah, this mutual support system is very well developed and there is a strong sense of inter-dependence and mutual support.

Table 13

Summary of the number (%) of underserved villages with traditional non-government social leaders in 191 villages in Sarawak according to ethnicity

Ethnic group	No. of villages surveyed	No. (%) of villages with: Traditional Headmen	Imam or Priest	Other Religious Leaders	Traditional Birth Attendant	Traditional Medicine-men
Iban	97	92 (95%)	3 (3%)	12 (12%)	48 (49%)	36 (37%)
Bidayuh	23	20 (90%)	-	9 (39%)	14 (61%)	16 (70%)
Malay	15	8 (53%)	10 (67%)	4 (27%)	11 (73%)	12 (80%)
Chinese	8	1 (13%)	-	-	1 (13%)	4 (50%)
Others	42	34 (81%)	12 (35%)	15 (36%)	23 (55%)	21 (50%)
Mixed	6	6 (100%)	-	1 (17%)	3 (50%)	5 (83%)
Total	191	161 (84%)	25 (13%)	41 (21%)	100 (52%)	94 (49%)

4. IMPLICATIONS IN RESPECT OF HEALTH CARE

4.1 Peninsular Malaysia

In looking at the problem of providing health care in the underserved areas of Peninsular Malaysia the following must be borne in mind.

(1) Very broadly, the 11 states of Peninsular Malaysia can be categorised into 3 groups:

(a) Group "A" where the problem is "negligible", namely, Perlis, Penang, Melaka and Selangor.

(b) Group "B" where the problem is "moderate", namely, Johor, Kedah, Perak and Negri Sembilan.

(c) Group "C" where the problem is "moderately severe", namely, Kelantan, Pahang and Trengganu.

(2) In the Group "B" states where the problem is "moderate", it will be noted that the majority of underserved villages are within 1 to 3 miles beyond the geographical limits of the served areas, i.e. these underserved villages are largely adjacent or contiguous to served areas as is illustrated in Fig. 3 showing the district of Baling, Kedah.

(3) In the Group "C" states of Kelantan, Pahang and Trengganu, where the problem can be described as "moderately severe", it will be seen that even though many underserved villages are within 1 to 3 miles of the borders of served areas, as in Group "B" states, a large number of villages are as far as 4 to 10 miles from the

borders of served areas, as illustrated in Fig. 4 which shows the district of Dungun, Trengganu.

(4) Irrespective of whether an underserved village is found in a Group "A", "B" or "C" state, underserved villages are relatively small and about 40% have a population of less than 100 people while 24% have a population of less than 50 people.

(5) The present systems have as their most peripheral units, the midwife serving about 2,000 people (three-tier system) or the two *jururawat desas* based in a *klinik desa* and serving a population of 3,000 - 4,000 (two-tier system). In order to cover populations of 2,000 to 4,000 in the underserved areas such auxiliaries will have to cover large geographical areas with a radius of some 3 to 10 miles.

(6) The effective distance of any static facility is approximately an area within a radius of 30 - 60 minutes travelling time away. This can be anything from $1\frac{1}{2}$ miles to more than 10 miles depending on the type and availability of transportation in the area. However, underserved areas are mainly located off the roads and effective distances are relatively short as the most easily available form of transportation will be the bicycle or motor scooter which is available to 90% of villagers in the underserved areas of Peninsular Malaysia. However, during the rainy season, these village earth roads are often reduced to a muddy stream and neither bicycles nor motor scooters can be used and walking becomes the sole mode of travel.

(7) In practically all the underserved areas of Peninsular Malaysia, the situation is such that a health centre is not likely to be appropriate and the only kind of static health facility that can be used will be peripheral *klinik desa*. However, since underserved areas vary very widely in terms of the sizes of villages, the distances between villages and thus population density, the proximity and type of the nearest static health facility, the type and ease of communication and transportation and the availability of other government facilities such as schools, police stations, agricultural extension services, etc., a variety of *klinik desa* will need to be available so that the most appropriate may be utilized for any one situation.

(8) In some situations, as a consequence of population, communication, developmental and other factors, it will not be economically feasible to locate a static health facility within effective distance of the area and village-based health workers combined with mobile health facilities will have to suffice until population, communication, developmental and other factors have changed.

4.2 Sabah and Sarawak

Sabah and Sarawak can be categorised into a fourth group, Group "D", where problems can be described as "severe". As a parallel, the problem of providing health care in the underserved areas of Sabah and Sarawak is thus different from that in Peninsular Malaysia.

(1) Population densities are very much lower, and even though the size of villages in the underserved areas of Sabah and Sarawak are

similar to those of Peninsular Malaysia, namely that 40% of villages have populations of less than 100 people and 24% have less than 50 people, the geographical spread of these villages is over a much wider area. As indicated earlier the population density in Peninsular Malaysia is 195 persons per square mile while that in Sabah and Sarawak are 28 and 23 persons per square mile respectively.

(2) Further, communications is relatively poorer in Sabah and Sarawak and effective distances are thus proportionately reduced, with the result that in Sabah and Sarawak there is the double problem of sparsity and reduced effective distances.

A comparison of the location of underserved villages in a Group "B" district, exemplified by Baling, Kedah (Fig. 3), with that in the Group "C" district of Dungun, Trengganu (Fig. 4), finally with the district of Labuk Sugut in Sabah (Fig. 5), will illustrate the nature of the problem faced by Sabah and Sarawak.

(3) As in Peninsular Malaysia, effective distances are within a radius of 30 - 60 minutes travelling time from the nearest static health facility. However, in many underserved areas of Sabah and Sarawak effective distances may be drastically reduced,by the total absence of roads,to less than 3 miles. In fact it was noted in the Tongod Dispensary and VGSC in Kinabatangan, in Sabah, that all "safe" deliveries conducted by the sole trained midwife occurred within a 30 minute (one and a half mile) distance of the VGSC (Table 11).

(4) About 65% of underserved villages in Sabah and Sarawak are dependant upon riverine transportation which is about 5 times more

expensive and about 5 times slower than road transportation.

(5) To minimise the cost of materials and transportation, physical facilities such as clinics for the underserved areas of Sabah and Sarawak must continue to be built of timber, excepting where roads and other materials are available, in which case physical facilities requiring low maintenance and built from bricks and cement may be a better alternative in the long run.

5. HEALTH CARE DELIVERY SYSTEM FOR THE UNDERSERVED AREAS

5.1 Peninsular Malaysia

As has been stated in Section 4, the underserved areas of Peninsular Malaysia are chiefly contiguous to served areas and as such (Fig. 6) there are almost no areas where a health centre would be appropriate. Nevertheless a two-tier system with the peripheral tier of *klinik desa* extended into the underserved areas would be appropriate. However as a consequence of the factors stated in Section 4, there needs to be some modifications to the peripheral tier if the system is to deliver health care effectively in the underserved areas. The following three basic modifications to the two-tier system are recommended:

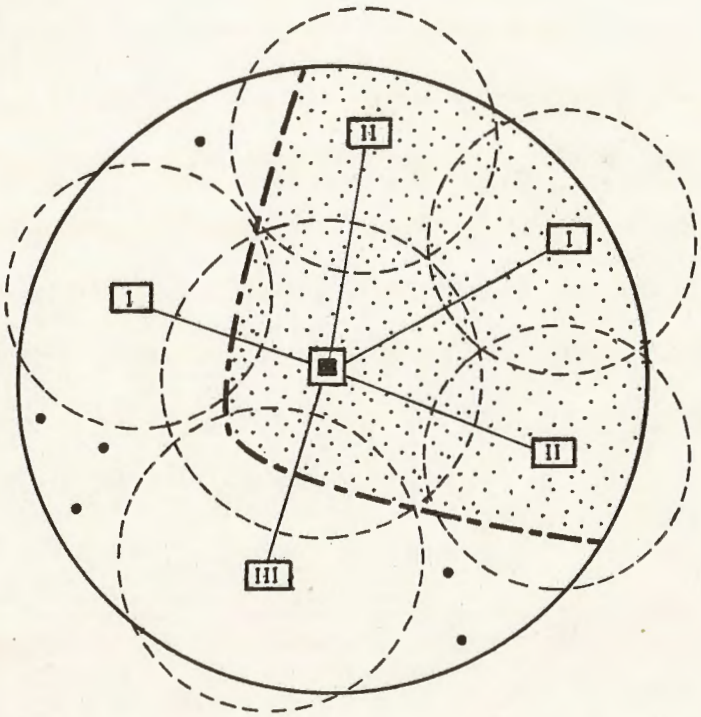
(1) The use of a variety of *klinik desa* to allow for sufficient flexibility to cope with the varying needs of different situations in the underserved areas, namely, a one-man *klinik desa* (Klinik Desa I), a two-man *klinik desa* (Klinik Desa II) and either of these with a mobile component added (Modified Klinik Desa).

(2) The use of mobile health teams to cover areas where conditions are such that a static *klinik desa* is economically not feasible.

(3) The use of village based health workers who are trained in a special set of health tasks and are also able to act as "mobilisers" to assist the mobile health team in its functioning.

As outlined in Annex 3, it will be noted that peripheral level *klinik desa* offer as a minimum the basic comprehensive service of simple

Fig. 6: **Schematic representation of a Health Care Delivery System extending from served areas into underserved areas in Peninsular Malaysia.**



Health Centre in contiguous served area

III Modified Klinik Desa with mobile health team

II Klinik Desa (II) with two jururawat desa

I Klinik Desa (I) with one jururawat desa

Village based health worker

Currently served areas

One hour isochron

curative medicine, maternity care as well as child care. In Peninsular Malaysia such services are offered by *jururawat desa*.

Depending upon the size of villages, distances between villages and thus the density of population, the type of communication and transportation available, the developmental stage of the area and the availability of other facilities such as schools, police stations, etc., one of a variety of *klinik desa* can be located in the underserved areas of Peninsular Malaysia.

(1) *Klinik Desa* (I)

Where population numbers are small but communications difficult it may be best to locate a one-man *Klinik Desa* (I). This would be manned by a J.D. who would operate within a radius of 30 to 60 minutes travelling time of her base (approximately $1\frac{1}{2}$ to 3 miles by walking). Where appropriate she should be provided with a motor scooter or bicycle. An area with a population of 500 or more people would be an approximate area for such a *Klinik Desa* (I).

(2) *Klinik Desa* (II)

Where population numbers are larger and densities are higher and thus work loads are greater, it would be appropriate to locate two multipurpose J.D. in one *Klinik Desa* (II). This has the advantage that some of the problems associated with a one-man clinic can be overcome. It is a well established fact that a single auxiliary suffers from loneliness, the strain of a continuous 24-hour standby call duty, relative immobility even within his own operational area, and needs a relief each

time he is on sick leave or annual leave.

(3) *Modified Klinik Desa*

In some fairly large areas, population densities are so low that it is not economically feasible to locate any static health facility within the area. In such an instance, the nearest *klinik desa* should be modified to accept a mobile health team which can then serve this widely scattered population. Such a *klinik desa* would then constitute a *Modified Klinik Desa*. At a minimum the mobile team should consist of a hospital assistant (H.A.), a *jururawat desa* (J.D.) and a public health overseer (P.H.O.). It would need appropriate transportation in the form of a vehicle, boat, scooters or bicycles. Where a vehicle or boat is used the H.A. can drive the vehicle or outboard and should be paid an allowance for doing so. This would cut down the cost of a separate driver or outboard driver. The P.H.O. should be allowed to maintain his own mobile schedule and should be provided with appropriate transportation. He can be temporarily located at this *klinik desa* until his primary tasks in relation to sanitation are completed, when he can be relocated in the next *klinik desa*. The function of the mobile health team in respect of village based health workers is discussed in a later section.

(4) The Building Type

A standard *Klinik Desa* for one or two personnel can be used. In the case of a one-man *Klinik Desa* (I), the extra quarters can be used temporarily by a sanitarian (P.H.O.) who could be temporarily attached to the *Klinik Desa* to carry out primary sanitation. It could also be

used by supervisory staff who come by on their regular visits.

A *kampung* type house built by the people with funds channelled through the District Medical Officer of Health could also be used as a *klinik desa*. It should be of local materials and blend with the village in which it is located.

Whether the *klinik desa* is built by the government or by the community, it would be useful to build it on tall wooden stilts so that the ground floor can be used as additional storage, clinic or meeting space. Such buildings already exist as *klinik desa* in Sarawak (Fig. 11).

5.2 Sabah and Sarawak

The basic concept of a two-tier health care delivery system, as defined in Annex 3, in which the central core consists of health centres while the peripheral tier consists of a variety of *klinik desa* can be applied to Sabah and Sarawak. However for historical, geographical and cultural reasons, the system will be somewhat different from that in Peninsular Malaysia even though the basic concept is the same.

As has been noted previously, Sarawak as of early 1980, has a total of 42 *(Modified) Klinik Desa*, each of which has been planned to include both a static and a mobile team that will provide the basic comprehensive services of rural curative medicine, maternal and child care, sanitation and emergency dental extraction. However, up to this point, smaller static *klinik desa* units without a mobile team have not been developed. Nevertheless any rural M.C.H. units that are manned by *jururawat masyarakat* (community nurses) who provide basic comprehensive

services including at a minimum simple curative medicine, maternal care and child care, can theoretically be classified as *klinik desa*. Along the same lines, the village group sub-centres of Sabah, if they are manned by rural health nurses who are able to provide these basic services, can be considered as *klinik desa*. However clinics manned by midwives who are not trained to provide simple curative medicine or child care but only maternity services are by definition (Annex 3) midwife clinics and not *klinik desa*. Similarly clinics that provide only curative medicine are dispensaries or sub-dispensaries and not *klinik desa*. In other words, even though the two-tier health care delivery system has not been extensively developed in either Sabah or Sarawak, some basic components appropriate to such a concept are already available on the ground.

In Sarawak there are 5 health centres, 3 of which are manned by doctors, 42 *(Modified) Klinik Desa* and a smaller number of clinics manned by multipurpose auxiliaries (J.H.A. or J.M.). In addition there are a large number of dispensaries and sub-dispensaries which, if they can be staffed in such a way as to provide basic comprehensive health services, will in effect be *klinik desa*.

In Sabah, there are at least 227 village group sub-centres, almost all of which are manned by rural health nurses (R.H.N.) and which therefore can provide the basic services of simple curative medicine, maternal care and child care, and which therefore are effectively *klinik desa*.

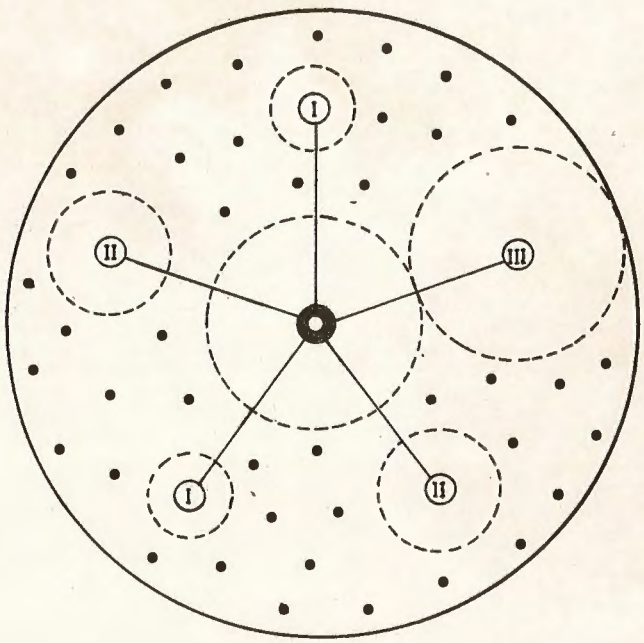
Thus in the case of Sarawak and Sabah, in the remaining underserved areas, it would be appropriate to utilize the two-tier system, defined in Annex 3, in which the central core of health centres provides basic comprehensive services as well as comprehensive supervision having as a minimum a variety of auxiliaries (J.H.A., J.M., R.H.N., R.H.S.) and at least one hospital assistant, one public health nurse or health visitor, and one public health inspector or senior rural health supervisor. At the periphery are a variety of *klinik desa* all of which as a minimum provide simple curative medicine, maternal care and child care (Fig. 7).

(1) Phase I Health Centre (Sabah-Sarawak type)

As mentioned above, in the underserved areas of Sabah and Sarawak, the core of the system will contain a Phase I Health Centre containing supervisory staff such as a senior grade hospital assistant, a health visitor, and a public health inspector or senior rural health supervisor. However, there would not be a doctor or a dental surgeon. In addition service staff such as a hospital assistant, a junior hospital assistant, 2 *jururawat masyarakat* or rural health nurses, and a rural health supervisor would provide both static and mobile services within the operational area of the health centre and in the surrounding underserved areas respectively. The floor plan of a Phase I Health Centre (Sabah-Sarawak type) is shown in Fig. 8.

In the surrounding underserved areas can be located a number of *klinik desa*. Three types are envisaged, the choice of the variety being dependent upon the size of the population, the ease of communication,

Fig. 7: **Schematic representation of a Phase I Health Care Delivery System (Sabah - Sarawak type) incorporating Health Centre (Phase I), a variety of Klinik Desa and village based health workers beyond the one hour isochron (travelling time).**



Health Centre (Phase I) with supervisory and service staff but no doctor or dental surgeon

III Modified Klinik Desa with mobile health team

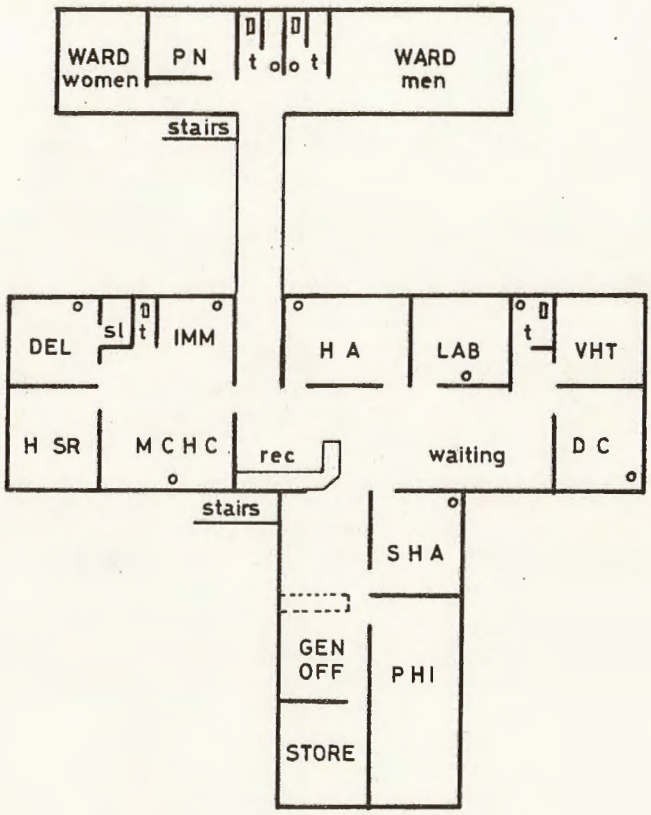
II Klinik Desa (II) with two multipurpose auxiliaries

I Klinik Desa (I) with one multipurpose auxiliary

Village based health worker

One hour isochron

Fig. 8: **Schematic representation of the floor plan of a Health Centre - Phase I (Sabah - Sarawak type) showing the various components and the offices of service and supervisory staff. Unlike a Phase II Health Centre, there is no doctor or dental surgeon.**



DC	Dental Clinic
DEL	Delivery
GEN OFF	General office
IMM	Immunisation
LAB	Laboratory
MCHC	Maternal and Child Health Clinic
PN	Post-Natal Ward
VHT	Village Health Team
SHA	Senior Hospital Assistant
H SR	Health Sister
HA	Hospital Assistant
PHI	Public Health Inspector or Senior Sanitarian
rec	Reception
sl	Sluice
t	Toilet
o	Sink,

the proximity of a health centre and therefore of a mobile team, and whether a mobile team element is essential in the area.

(2) *Klinik Desa* (I)

A *Klinik Desa* (I) will contain a single multipurpose worker in the form of either a junior hospital assistant (J.H.A.) or a *jururawat masyarakat* (J.M.) or a rural health nurse (R.H.N.), who is able to provide both simple rural curative medicine as well as maternal and child care. Preliminary investigations into the work of auxiliaries in Sarawak indicate that, the single most appropriate multipurpose auxiliary for location in a one-man *Klinik Desa* (I) would be either a J.H.A. or a J.M. (Table 14). However if the emphasis is on maternal and child health, the J.M. would be the more appropriate. Nevertheless a high degree of flexibility should be permitted in the choice of staff to a one-man clinic. Nevertheless a *klinik desa* must provide the basic minimum of simple curative medicine, maternal care and child care. A *Klinik Desa* (I), depending on the circumstances enumerated previously, may be appropriately located in an area with a population of 500 or more.

(3) *Klinik Desa* (II)

A *Klinik Desa* (II) would be manned by two multipurpose auxiliaries offering the minimum of simple curative medicine and maternal and child care. A combination of a J.H.A. with a J.M. (Sarawak) or R.H.N. (Sabah) would be what is common. However there is no reason to exclude a combination of 2 J.M. or 2 R.H.N., or a J.H.A. with a R.H.S. (sanitarian) or a J.M. with a R.H.S. The only proviso is that the minimum of simple

Table 14

Types of service provided by 5 categories of auxiliaries in Sarawak in relation to training received

Basic services	Category of staff				
	JHA	JM	MA	Midwife	RHS
1. Rural curative service	3	3	3	1	0
2. Dental extraction	2	0	2	0	0
3. Maternal care	2	3	0	3	0
4. Child care	2	3	0	1	0
5. Health education	3	3	3	3	3
6. Environmental sanitation	0	0	0	0	3
7. Laboratory services	0	0	0	0	0
8. Communicable disease control	3	3	3	3	3
9. Data collection	3	3	3	3	3
10. Training of other staff	0	0	0	1	0
Total points	18	18	14	15	12

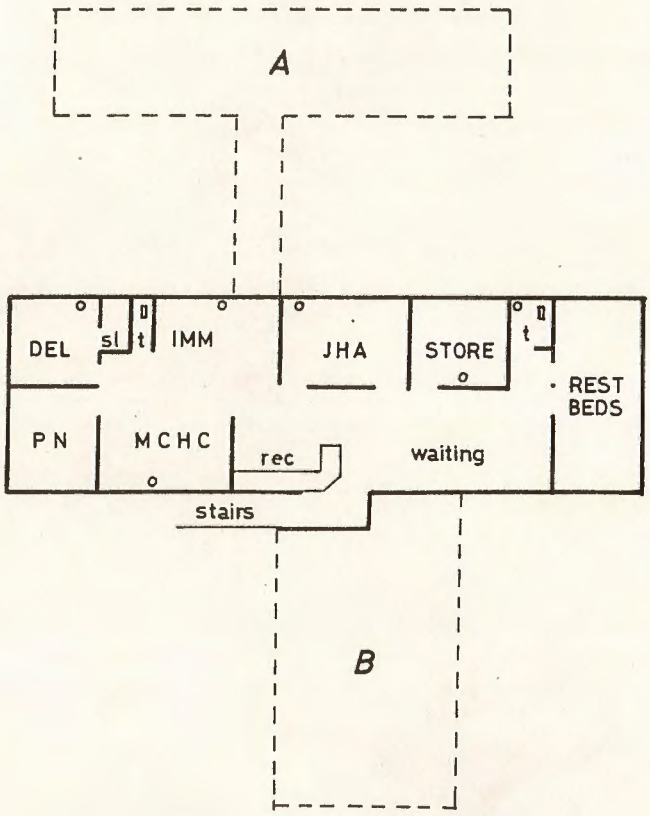
Points: 3 - trained and provides service
2 - trained but does not provide service
1 - not trained but provides service
0 - not trained and does not provide service

curative medicine and maternal and child care must be offered. In other words a high degree of flexibility should be maintained and the appropriate combination of staff chosen in accordance with the problem peculiar to that area. In any case, the sanitarian will only be temporarily located in the area and when he has completed his primary tasks in sanitation, he could be relocated at some other *klinik desa.* Such a *Klinik Desa* (II) would be appropriate for areas that have a work load sufficient to occupy two static staff. The floor plan of such a *Klinik Desa* (II) is shown in Fig. 9. It will be noted that a *Klinik Desa* (II) can easily be modified into *Modified Klinik Desa* to contain a mobile team (Fig. 10 and Fig. 11) or into a Phase I Health Centre (Sabah-Sarawak type) to contain additional staff and supervisory staff (Fig. 8).

(4) *Modified Klinik Desa*

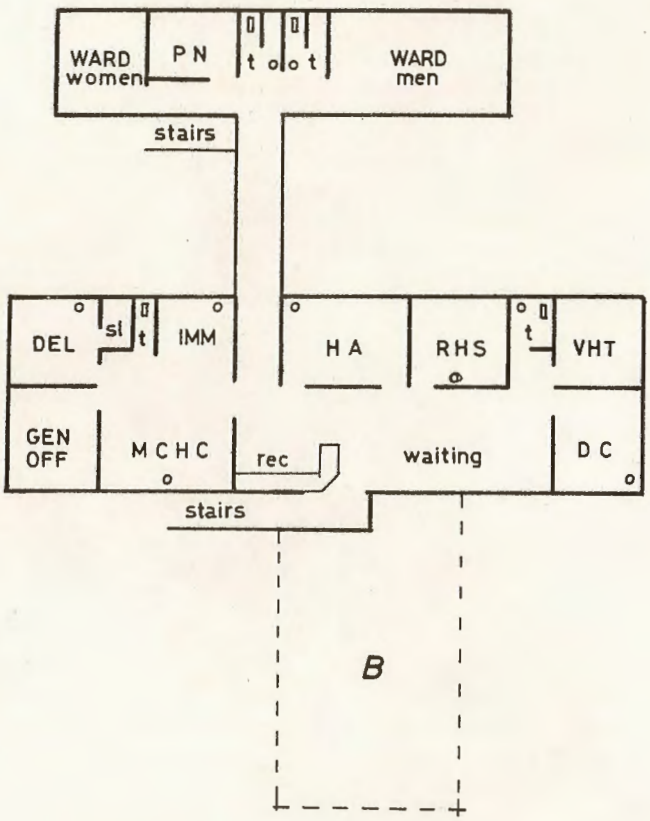
Where circumstances and population densities warrant it, it may be appropriate to locate a mobile team with a one-man *Klinik Desa* (I) or even a two-man *Klinik Desa* (II). Such a *klinik desa* would then constitute a *Modified Klinik Desa.* It would then be manned by a mobile team consisting of a H.A. or J.H.A., one J.M. or R.H.N. and a sanitarian (R.H.S.). In addition it would have the static team consisting of either one or two multipurpose workers (J.H.A. or J.M. or R.H.N.) depending on whether the static unit is a one-man *Klinik Desa* (I) or a two-man *Klinik Desa* (II). The mobile team would provide basic comprehensive services to the surrounding underserved areas beyond the operational area of the static *klinik desa,* and should be provided with the appropriate means of transportation be it a vehicle, boat, scooters or

Fig. 9: Schematic representation of floor plan of a Klinik Desa (II) (Sabah - Sarawak type) showing the location of various components and the offices of the two multipurpose workers namely one junior hospital assistant (JHA) and one community nurse (JM or RHN). Plan for extension into a Modified Klinik Desa (A) and finally into a Phase I Health Centre (B) are outlined.



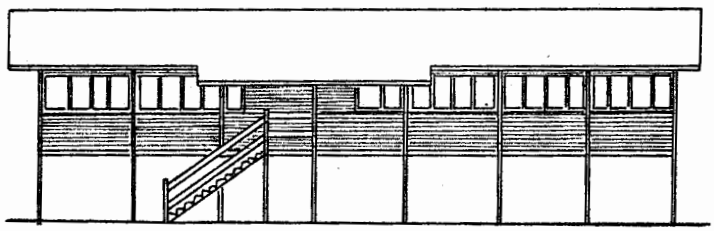
DEL	Delivery
IMM	Immunisation
MCHC	Maternal and Child Health Clinic
PN	Post-Natal Ward
JHA	Junior Hospital Assistant
rec	Reception
sl	Sluice
t	Toilet
o	Sink

Fig. 10: **Schematic representation of floor plan of a Modified Klinik Desa (Sabah - Sarawak type) showing the various components and the offices of the hospital assistant (HA), a community nurse (JM or RHN), a sanitarian (RHS) and the village health team (VHT) which includes a JHA and a JM or RHN. The possibility of upgrading into a Phase I Health Centre is indicated by the dotted outline "B".**

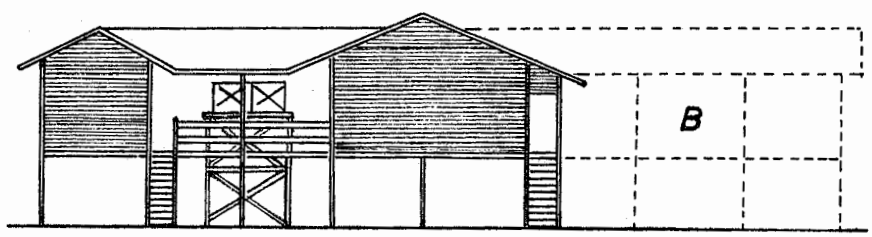


DC	Dental Clinic
DEL	Delivery
GEN OFF	General Office
IMM	Immunisation
MCHC	Maternal and Child Health Clinic
PN	Post-Natal Ward
VHT	Village Health Team
HA	Hospital Assistant
RHS	Rural Health Supervisor
rec	Reception
sl	Sluice
t	Toilet
o	Sink

Fig. 11: Schematic representation of front and side elevations of a Modified Klinik Desa (Sabah - Sarawak type). It will be noted that the building is largely of wooden construction with the possibility of converting the ground floor into additional storage and clinic space if circumstances warrant. The Klinik Desa can be upgraded into a Phase I Health Centre by the addition of the extension "B".



FRONT ELEVATION



SIDE ELEVATION

bicycles. The H.A./J.H.A. should be the driver and be paid an appropriate allowance for this.

Fig. 10 shows the floor plan of a *Modified Klinik Desa* (Sabah-Sarawak type) and the basic staffing pattern while Fig. 11 depicts the front and side elevations of the building. As in the case of the *Klinik Desa* (I), the *Klinik Desa* (II) and the Phase I Health Centre, the building is largely constructed of wood and is raised off the ground so that the ground floor can be readily converted into additional storage, clinic or meeting space should the circumstances warrant it.

(5) Delivery Room and Wards

It will be noted that at both the *klinik desa* level as well as at the health centre level, a delivery room and postnatal beds have been included. This is an essential component of maternal and child health services in the context of Sabah and Sarawak since approximately 65% of all deliveries by rural M.C.H. staff in Sarawak are conducted in the clinic itself (Table 15). In some areas as high as 85% of deliveries conducted by rural M.C.H. staff are in the clinic itself as exemplified by the Ng. Taroh M.C.H. Clinic, Sarawak (Table 16). As the time to obtain midwifery help can be reduced by as much as 50%, clinic and hospital deliveries come from slightly further away than home deliveries. In the case of Ng. Taroh, no home deliveries were conducted by the midwife from beyond the one hour isochron whereas both clinic and hospital deliveries came from distances as far as $1\frac{1}{2}$ hours away. Beyond this isochron only traditional birth attendants were summoned (Table 16).

Table 15

Number (%) of deliveries by trained and untrained personnel, Sarawak, 1974 - 1979

Year	No. (%) of deliveries by trained personnel					Untrained or unidentified persons	Total registered live births
	M.C.H. Staff			Hospital	Total "safe" deliveries		
	In clinic	At home	Total				
1974	3,493	3,519	7,012 (22.1)	13,222 (41.8)	20,234 (63.9)	11,405 (36.0)	31,639
1975	3,107	3,516	6,623 (20.1)	14,864 (45.2)	21,487 (65.3)	11,433 (34.7)	32,920
1976	4,274	3,400	7,674 (23.4)	16,073 (49.0)	23,747 (72.4)	9,042 (27.6)	32,789
1977	4,754	3,076	7,830 (23.3)	15,153 (45.1)	22,983 (68.4)	10,622 (31.6)	33,605
1978	5,193	2,693	7,886 (23.9)	16,032 (48.7)	23,918 (72.6)	9,012 (27.4)	32,930*
1979	5,450	2,649	8,099	18,242	24,143	NA	NA

* provisional figures

NA - not available as yet

Source: M.C.H. Division, Medical Department, Sarawak.

Table 16

Number (%) of "safe" and "unsafe" deliveries conducted around the Ng. Taroh MCH Clinic, Division III, Sarawak in 1977 and 1978

Distance in Time	Name of village	No. (%) of "safe" deliveries at				No. of of "unsafe" del.	Total Del.
		Hospital	Clinic	Home	Total		
0 - ½ hr	Sumping, Ayup, Bangga, Labang, Dadur, Bemban, Bidor	5	17	2	24	10	34
1 hr	Billi, Kudang, Igun, Jilung	1	8	2	11	8	19
1½ hr	Mat, Asun, Serang	3	2	0	5	11	16
2 - 3 hr	Minggat, Jingin, Madang, Ulu Mukah	0	0	0	0	6	6
	Total	9 (12)	27 (36)	4 (5)	40 (53)	35 (47)	75

In other words it seems likely that the utilization of maternity services at the clinic itself can increase the proportion of "safe" deliveries in the rural context.

(6) The Building Type

The standard building type currently used for Health Centres in Sarawak can be utilized for the Phase I Health Centre while the standard *klinik desa* of Sarawak can be used for the *Modified Klinik Desa*. Down-graded versions of this can be used for the *Klinik Desa* (I) and *Klinik Desa* (II). However current standard plans must be slightly modified and integrated so that structural changes are minimised when the building is upgraded from *Klinik Desa* to *Modified Klinik Desa* to Health Centre or vice versa. Fig. 8 to 10 are based on current building plans in Sarawak but have been slightly modified to achieve this integration. These can be used as models for adaptation in Sabah and Sarawak.

As in Peninsular Malaysia, the standard plan for a *Klinik Desa* (II) can be used for a one-man *klinik desa* with the extra quarters and space being temporarily used by a sanitarian (R.H.S.) who is temporarily attached to this *klinik desa* until such time as his primary tasks in sanitation are completed. It can also be used by supervisory staff who come by on their regular visits.

A *kampung* type house built by the people with funds channelled through the Area Medical Officer (Sabah) or the Divisional Medical Officer (Sarawak) could also be used as a *klinik desa*. It should be of local materials and blend with the village in which it is located. In both

Sabah and Sarawak there has been a long history of such cooperative efforts and many dispensaries and sub-dispensaries are of such contruction.

Whether the *klinik desa* building is built by the government or the community it should be of wood and be built on high wooden stilts so that the ground floor can be used as additional storage, clinic or meeting place as shown in Fig. 11. The minor maintenance and repairs of the building should be entrusted to the Area Medical Officer (Sabah) or the Divisional Medical Officer (Sarawak) and not left to the Public Works Department (J.K.R.). Appropriate funds and staff such as a carpenter should be available for this purpose.

(7) Radio-telephones in Sabah and Sarawak

Due to the extreme difficulty of communications in many under-served areas in Sabah and Sarawak, there is a need for some *klinik desa* to be provided with radio-telephones. This is essential so that the theoretical link from the village based health worker to the mobile health team and to the static *klinik desa* and eventually to the health centre, district hospital, and general hospital can be maintained. It would be meaningless if *klinik desa* are unable to refer problems to a higher level of care and supervision. Radio-telephones can also be utilized to call for emergency help from the flying doctor service and for the evacuation of the seriously ill by helicopter.

Although a number of radio-telephones have already been installed in Sabah and Sarawak, a high proportion of these are out of order. The principal problems include poor maintenance, batteries that

have discharged and the lack of training in the proper use of radio-telephones. Radio-telephones are essential and should be installed in the remoter *klinik desa*. However not only must they be regularly maintained but all new staff must be trained in the proper use of these sets. Power sources particularly the use of batteries supplemented by the use of solar-cells may be a good alternative. Some field trials should be carried out with different combinations as soon as possible.

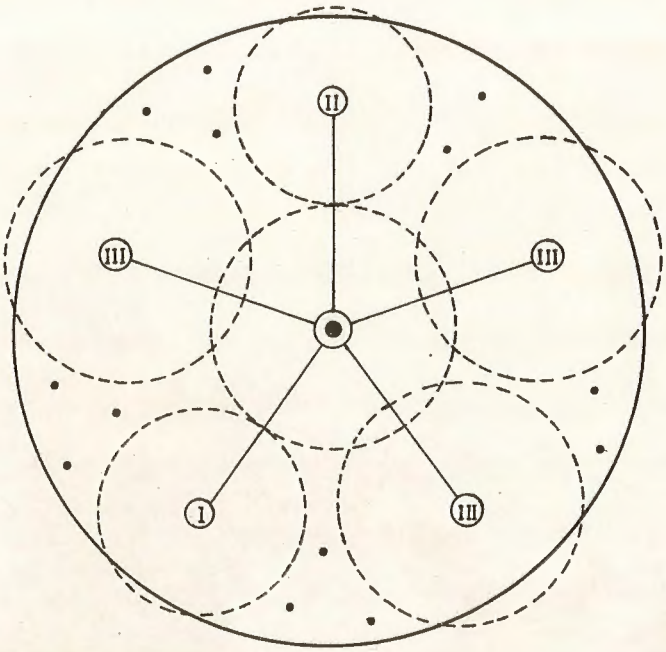
In areas where another civilian government department possesses a radio-telephone, such as the Up-River Agent or the Sub-District Office, it may be best to share the facility and to avoid duplication. In this respect it should be pointed out that radio-telephones maintained by the police and military forces such as the Border Scouts are not particularly suitable as these are of a different wave-length and are not linked to the network maintained by the Telecoms Department. Thus *klinik desa* staff cannot communicate with supervisory staff or with the flying doctor service except in "telegram" format in one direction.

(8) Phase II Health Centre Delivery System

As populations increase, communications improve and development proceeds, it is possible to upgrade the basic Phase I Health Care Delivery System described earlier into a more sophisticated one by upgrading the quality of services and supervision, without changing the two-tier concept.

At the central core, the Phase I Health Centre can be upgraded to include a doctor, a dental surgeon and additional staff to provide a higher quality of service and supervision (Fig. 12). At the peripheral

Fig. 12: Schematic representation of a Phase II Health Care Delivery System (Sabah - Sarawak type) incorporating Health Centre (Phase II), Klinik Desa and village based health workers beyond the one hour isochron (travelling time).



Health Centre (Phase II) with doctor and dental surgeon

Modified Klinik Desa

Klinik Desa (II)

Klinik Desa (I)

Village based health worker

One hour isochron

tier, if circumstances warrant it, *klinik desa* can be modified. For example as work loads increase a one-man *Klinik Desa* (I) can be upgraded into a two-man *Klinik Desa* (II). This can remove many of the disadvantages and problems associated with a one-man clinic as mentioned previously. In Phase II it is also possible for a *Modified Klinik Desa* with a mobile team to be down-graded to a *Klinik Desa* (I) or a *Klinik Desa* (II) when the need for a mobile team is no longer present.

5.3 Location and Choice of Static Health Facilities

A number of factors must be taken into consideration in the location and choice of static health facilities in the underserved areas.

(1) Population

Where population concentrations are relatively high it will be possible to delineate areas within a 3 mile radius that will contain 500 or more people. In such instances one of the 3 varieties of *klinik desa* can be located. If populations are just around 500 a single-person *Klinik Desa* (I) could be appropriate, depending on other factors that will be enumerated below. Where population numbers are around 1000 a two-person *Klinik Desa* (II) could be appropriate, after other factors have been considered. Where the surrounding areas are such that population, communications and other factors prohibit the location of any more *klinik desa*, a mobile team should be located at the *klinik desa* which now becomes a *Modified Klinik Desa*. From this base the mobile team then covers those areas that remain underserved and which, as stated earlier, are for one reason or other inappropriate for a static *klinik desa*.

In examining the question of population, it should be borne in mind that population changes are likely and efforts should be made to locate static health facilities at sites determined to be new growth centres in developmental plans. In addition the location of planned roads, new towns, schemes and industrial sites should be located on the map before the location of a new static facility in the underserved areas is finalised.

Account should also be taken of factors that may decrease population sizes in an area. For example, migrant labour camps associated with the lumber industry can be quite sizeable at a moment in time but can rapidly disappear once the lumber has been extracted.

(2) Distance to Nearest Static Health Facility and Mobile Team

Where the underserved area is close to a Health Centre or a *Modified Klinik Desa* with a mobile team, even though it is surrounded by a thin scattering of small villages, it would obviously not be appropriate to build a *Modified Klinik Desa* as a mobile team already exists nearby and areas beyond its operational limits can be covered by this nearby mobile team. At best a *Klinik Desa* (I) or (II) would be appropriate. Thus the location of adjacent static facilities as well as the presence of a mobile team should be considered.

(3) Accessibility

Where communications and transportation are readily available the effective distance of a clinic can be greatly increased. In such instances a larger geographical area and thus population can be included

within its operational limits and perhaps a *Klinik Desa* (II) might be appropriate. On the other hand, where communications and transportation are extremely poor the effective distance of a clinic will be extremely short and a great deal of time will be spent in getting from one house to another. In such a situation a one-man *Klinik Desa* (I) can be appropriate in a relatively small operational area and with a relatively small population of 500 people or so.

Where population numbers are very low and communications very poor, it will not even be possible to include 500 people within the limits of a one-hour isochron that is a $1\frac{1}{2}$ to 3 mile radius. In such instances the mobile team will be the appropriate answer. As will be mentioned later, such an area would also require village based health workers who have been appropriately trained and who will come under the supervision and continued retraining of the mobile team. In such situations the siting of a *Modified Klinik Desa* in a relatively highly populated central location surrounded by a relatively large and thinly populated hinterland would be appropriate. It might seem paradoxical that when population numbers are so thin, a *Modified Klinik Desa* with a mobile team is the choice. The alternative is a mobile team located in an adjacent health centre that is sufficiently close by.

In looking at the question of accessibility, the location of newly planned roads and new growth centres should be examined. Development agencies should always be consulted before a static health facility is sited.

Social inaccessibility including "cultural shyness", particularly of nomadic tribes such as the Penans of Sarawak, should also be taken into account. Such an obstacle could mean that an auxiliary located in a *klinik desa* can manage relatively fewer people and this should be considered when population size is being used as a criteria for siting a physical facility.

(4) Health and Socio-economic Status of the Area

It might sound paradoxical that the poorer, less developed and socio-economically depressed areas should receive priority for the location of static health facilities. As was indicated earlier, the more economically depressed an area is, the less likely is the people to be able to move in search of health care and the more likely is the cost per mile of transportation to be higher. Effective distances therefore correspondingly decrease and the need to locate a static health facility in the area increases. On the other hand, as has been well recognised, health has a positive contribution to make to elevate the socio-economic well being of an economically depressed community and to contribute towards the breaking of the cycle of poverty and disease. An elaborate physical facility is not crucial. A simple *kampung* type *klinik desa* would suffice. However the quality of care should at least be that of a *klinik desa* as opposed to merely curative services available from a dispensary or maternity services available at a midwife clinic.

Areas with high mortality rates and high rates of malnutrition, gastroenteritis and bronchopneumonia should be considered as priority areas for the location of physical facilities. In these areas, a smaller

population size should not detract from the need to locate a physical facility such as a *klinik desa* in the area.

(5) Developmental Status

Related to the foregoing is the developmental status of a particular area. As has been mentioned previously, developmental plans are crucial and may indicate the location of new growth centres, roads, industrial sites, agricultural development projects as well as the likelihood of population increases, decreases and movements.

Along a different dimension is the developmental stage at which a particular set of villages have arrived. As noted previously the economically depressed areas are the ones with the least ability to obtain care, the least able to move in search of care (riverine transportation costs 5 times more and is 5 times slower than road transportation) and yet they have the highest quantity of ill health. Thus priority should be given to such areas.

In this respect, the Village Classification System (*Klasifikasi Kampung Luar Penguasa Tempatan*) used by the Implementation and Coordination Unit of the Prime Minister's Department, Malaysia, would be relevant. In this classification system rural villages including those in Peninsular Malaysia, Sabah and Sarawak are being classified into one of 3 categories in respect of each of a number of characteristics.

Category "A" - *Kampung Maju* (developed village)

Category "B" - *Kampung Sederhana* (moderate village)

Category "C" - *Kampung Mundur* (backward village)

Information being gathered includes data on population size, ethnicity, occupations, social organizations, physical development, economic development and social development. For example in the District of Dungun, Trengganu, out of 33 composite villages, 9 were categorised as "B", moderately developed, and 24 as "C", backward, in respect of physical development and infrastructure. Similarly, out of the 33 composite villages, 3 were classified as "B", and 30 as "C" in respect of social development. Villages that fall into category "C" are obviously the most backward and thus should receive priority when physical facilities are being sited.

5.4 Need for Flexibility

It should be reemphasized that a high degree of flexibility should be maintained in the implementation of the health care delivery system for the underserved areas.

(1) At the peripheral tier, all 3 types of *klinik desa* should be available for use in accordance with different situations.

(2) Staffing patterns should be flexible, so long as the basic services of simple curative medicine, maternity care and child care are provided. Different combinations of auxiliaries and paramedicals should be permitted in accordance with differing local problems and needs.

(3) This flexibility in staffing should also extend to the temporary location of different categories of staff according to special local problems. Thus a sanitarian (R.H.S., P.H.O.) can be temporarily

located at a *klinik desa* for a while until such time as he has completed his primary tasks in sanitation when he can then be relocated elsewhere.

(4) In the underserved areas staff should be as "multipurpose" as is possible. However,extra skills, duties and responsibilities should be recognised and, if possible, an appropriate allowance should be paid. Thus a H.A. or J.H.A. can double as the driver of a vehicle or as an outboard driver and be paid an appropriate allowance for doing so.

(5) Flexibility in health centre staffing and building is required in order to cope with differing situations. Thus at least two levels of health centres are needed. In the Phase I Health Centre a lower level of comprehensive services and supervision is provided while the Phase II Health Centre includes a doctor and a dental surgeon and thus provides a higher level of care and supervision. Nonetheless the two-tier system remains as the basic pattern. Flexibility in physical building types should be permitted. Not only should standard type health centres and *klinik desa* be used but also *kampung* type houses of local design. As far as is possible they should however be built on stilts so that the ground floor space can be easily converted into additional storage,clinic and meeting space. However local building styles will need to be taken into consideration.

6. HEALTH CARE BEYOND THE OPERATIONAL LIMITS OF STATIC HEALTH FACILITIES

The operational limits of a static health facility is very much dependant upon the availability of communication and transportation in the area, and can be measured both in terms of distances as well as time.

The operations research study of 1972 in Peninsular Malaysia found that the majority of people coming to rural health services because of ill health were coming from within a radius of 3 to 5 miles. Translated into travelling time this will mean a radius of 30 to 60 minutes travelling time. It will be noted that in Tongod, Kinabatangan, Sabah (Table 11), no "safe" deliveries occurred beyond the 30 minute radius, and in Ng. Taroh, Sarawak (Table 16), the use of in-patient maternity beds increased this distance to a maximum of $1\frac{1}{2}$ hours beyond which there were no "safe" deliveries. It therefore seems reasonable to assume that beyond the one hour isochron, villages can definitely be considered to be beyond the effective reach of the peripheral static health units such as the *klinik desa*.

Areas beyond a $1\frac{1}{2}$ to 3 mile radius (30 to 60 minutes by walking) of a static health facility in the underserved areas of Malaysia have already been previously defined as underserved. However, it will be noted that there are two categories of underserved areas. Firstly, there are those areas where *klinik desa* are being planned for and in the very near future these areas will be served by static health facilities. Such areas have already been dealt with in the previous section. The second category are those areas where population numbers are such that no static health facility can be economically located in the immediate foreseeable

future. Such areas have also been mentioned previously, when it was recommended that facilities be created to locate a mobile health team in the nearest available or planned *klinik desa*, from which the team would then cover the surrounding thinly populated underserved areas. Such a *klinik desa* would then be described as a *Modified Klinik Desa* (Fig. 6, 7, 10 and 11).

In those areas where a *klinik desa* would not be economically feasible, a combination of mobile health services and the people's own active participation will have to be the mainstay of the Health Care Delivery System until such time as population density, communications and development have changed the status of the area.

The role of the mobile team and the community has been well summarised by Tan Sri Dr. Raja Ahmad Noordin (1978) and this is reproduced as Table 17. This concept incorporates the complementary roles of the government, the individual family, as well as the community itself. The role of the government is seen to be chiefly carried out by the mobile health team.

6.1 Community and Family Participation

There is a long history of community development in Malaysia. In 1962 the Government of Malaysia launched *Gerakan Kemajuan* (Operation Progress) which was followed in 1972 by *Gerakan Pembaharuan* (The Renewal Movement). More recently, the government has embarked on a "Village Rehabilitation Programme" with the objective of uplifting the socio-economic status of the rural population, especially in the disadvantaged areas of the

Table 17: Community health movement activities and services at kampung level

	Activity Category	Government (Health & health related)	Family's Role	Community (Organized activities)
1.	Medical Care	Treatment of minor ailments (mobile team = MT)	Utilize services	- Facilitate mobile team visit - First aid service - Referral of cases
2.	Maternal and Child Care	- Ante-natal clinic (MT) - Post-natal clinic (MT) - Family planning (MT) - Child health clinic (MT) - Immunization (MT) - School health service (MT)	- Maintain mother's health & nutrition - Practise child spacing - Utilize service - Child care by mother	- Care by trained kampung bidan - Pre-school education (e.g. TBK) - School/community cooperation for health
3.	Food and nutrition	- Nutrition education (MT) - Supplementary feeding (MT) - Home economics service	- Utilize services - Practise nutrition and home improvement - Home garden	- Buku Hijau - Role of W.I., Farmer's Association etc.
4.	Sanitation a. water supply b. toilets c. refuse disposal	- Sanitation advice (MT) - Subsidy (toilets) - Subsidy and technical advice (water supply)	Practise personal hygiene and environmental sanitation	- Record keeping and coordination by JKKK, etc. - Mobilization of local material manpower resources
5.	Disease Control	- Investigation, treatment and control	- Report illness to JKKK	- Report outbreaks - Support investigation teams/control measures
6.	Community Education	- Rural broadcasts - School health education - Small group education (by MT)	- Utilize media resources - Attend educational and dialogue sessions	- Facilitate communal listening - Organize campaigns - Facilitate small group education (in Balai Raya, surau, etc.)

Source: Tan Sri Dr. Raja Ahmad Noordin (1978) Primary Health Care Approach in the Underserved Areas with Special Reference to Malaysia.

country. In this context health is seen as part of community development. As stated by the Director-General of Health, Malaysia, Tan Sri Dr. Raja Ahmad Noordin (1978)

> *"The primary health care approach in Malaysia will have to be part and parcel of the government's community development movement or Gerakan Pembaharuan (Operation Renewal) launched in 1972. In Gerakan Pembaharuan, health has a definite place, and like other components (namely, economy, education, spiritual development and security), the improvement of health requires an attitudinal change among both the community and agencies concerned. In the underserved areas, it is necessary for the efforts of the community to be joined with those of governmental agencies to improve the health situation."*

In this respect, it is not possible to divorce the function of the static health unit or the mobile health unit from the community's and family's activities to improve health. In fact, the active participation of the family links with,and should be supportive to that of,the community which in turn is complemented by that of the mobile health team, the

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Raja Ahmad Noordin (1978) Primary health care approach in the underserved areas with special reference to Malaysia, Proceedings of Inter-country Workshop on Primary Health Care Development in Malaysia and Republic of Korea (Malaysian Component) November 1978, Kuala Lumpur.

klinik desa, the health centre and ultimately the district, general and regional hospitals. In other words, the community's contribution to primary health care has to be an integral part and a continuum of the Health Care Delivery System.

To quote the Director-General of Health, Malaysia (Raja Ahmad Noordin, 1978):

> *"The Community Health Movement will consist of three elements -*
>
> *- Mobile teams as an interim measure*
>
> *- Organized community efforts*
>
> *- Community education."*

All these three elements are of particular importance in those underserved areas that remain so thinly populated that it would not be economically feasible to locate static *klinik desa* within the immediate foreseeable future. Many such areas, particularly in Sabah and Sarawak and to a lesser extent in Peninsular Malaysia, will continue to exist on the fringes of served areas, and small pockets of people will continue to have to be served by the Community Health Movement until population, communications and developmental changes have brought about sufficient change to warrant the location of a static *klinik desa*. Consequently, there is a need for the Community Health Movement to be developed and strengthened in the

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Raja Ahmad Noordin (1978) Primary health care approach in the underserved areas with special reference to Malaysia, Proceedings of Inter-country Workshop on Primary Health Care Development in Malaysia and Republic of Korea (Malaysian Component), November 1978, Kuala Lumpur.

underserved areas of Malaysia particularly in Sabah and Sarawak where situations similar to those described above will continue to remain as a major problem for several years to come. Appropriately so, the movement can be called the Community Health Renewal Movement.

6.2 Mobile Health Teams

Areas beyond the effective reach of peripheral static units, can be covered by mobile health teams based in the *Modified Klinik Desa* or Health Centre. These teams should consist minimally of:

(1) a paramedic, such as a H.A., or an auxiliary, e.g. J.H.A., who can provide simple rural curative medicine and if possible emergency dental extractions;

(2) a multipurpose auxiliary such as a J.D., J.M. or R.H.N. who can provide basic maternal and child care; and

(3) a sanitarian such as a R.H.S. or a P.H.O. who is temporarily located with the team until his primary tasks in sanitation are accomplished in which event he can be moved to a new operational area; a sanitarian should be allowed to maintain his own mobile schedule.

Transportation can be by road or river and the team should be provided with the appropriate means of transportation be it a vehicle, a boat, scooters or bicycles. The H.A. or J.H.A. can also double as a driver and be paid an appropriate allowance for so doing.

Frequency of visits will depend upon ease of communication. Road teams are usually able to maintain a fortnightly schedule whereas only

some riverine teams, as a consequence of the fact that river transportation cost 5 times more but is 5 times slower than road transportation, are able to maintain a fortnightly schedule. In many remote areas where riverine conditions are apt to be highly labile, with periods of floods alternating with other periods of drought, some underserved areas can remain cut off during parts of the year. As shown in Table 12, approximately 6% of underserved villages in Sarawak are cut off during parts of the year.

(1) Location of Mobile Health Teams

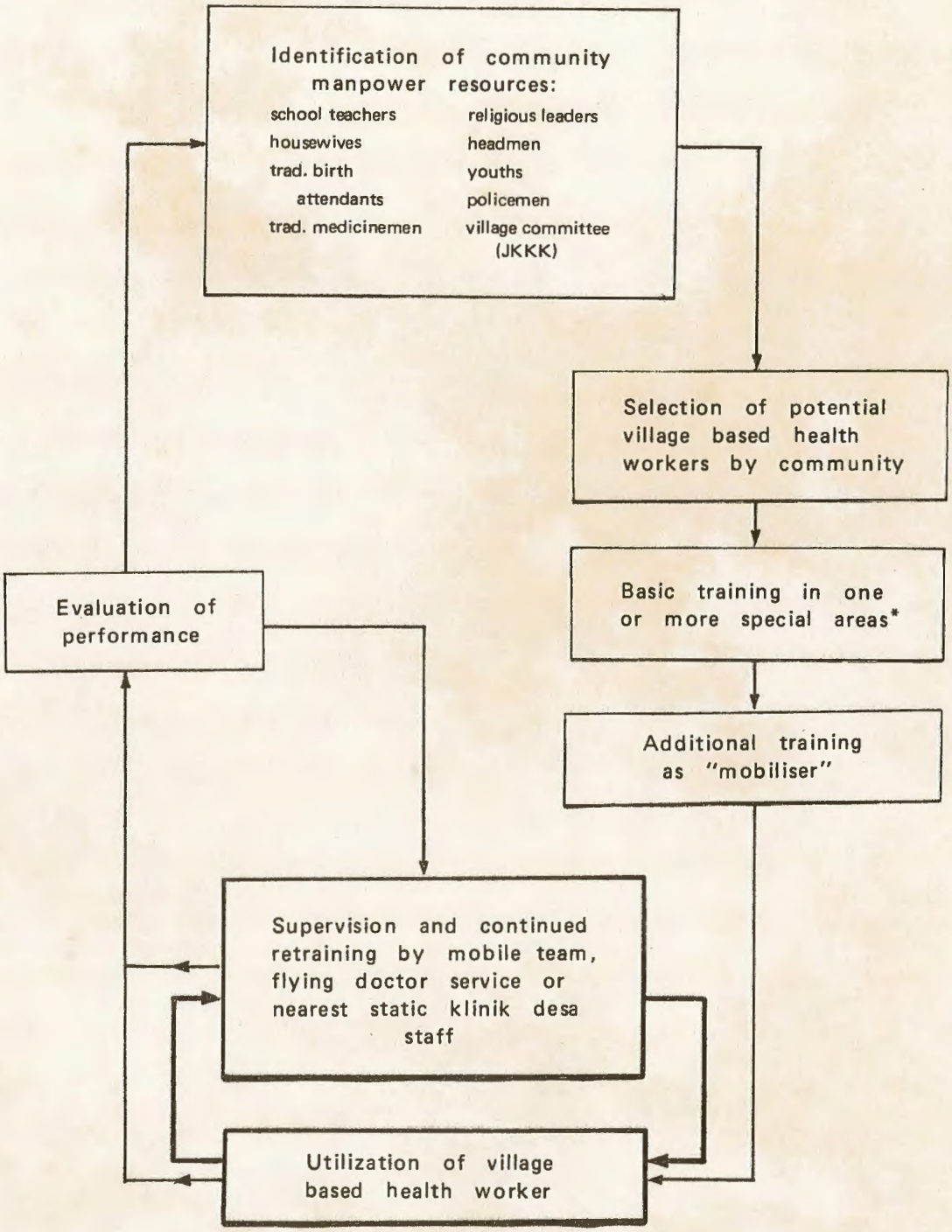
As indicated earlier, mobile health teams can be located at the *Modified Klinik Desa* level and at Health Centres. However, this does not mean that staff at the *Klinik Desa* (I) and (II) levels will remain completely static. By definition, they will continue to be mobile but, within their operational areas, while mobile teams will cover populations beyond the operational areas of the static units. In general, such areas are beyond the 30 - 60 minute isochron.

As will be mentioned later, these mobile teams should be assisted in the underserved areas by village based health workers (primary health care workers) whom they will also supervise and continually retrain (Fig. 13).

(2) Community Resources Available

Mobile health teams visiting villages in the underserved areas need a place from which they can operate. These can range from existing school buildings, community halls, prayer houses (*surau*, temples and

Fig. 13: **Schematic representation of the processes of identification, selection, training, utilization, supervision and retraining, and evaluation of village based health workers.**



* 4 special areas: simple M.C.H., curative medicine and first aid, home economics, and sanitation, which may be taken singly or in combination.

churches), private homes, to the *ruai* (verandah) of longhouses. Table 18 shows the types of physical sites available to a mobile health team in a sample of 191 villages in Sarawak. For cultural reasons, 103 (54%) of the villages in Sarawak indicate that the *ruai* (verandah) of the longhouse is the best available place. In Peninsular Malaysia and Sabah, the more commonly indicated places will be school buildings, community halls and prayer houses.

Manpower is another resource available in all communities. This will be dealt with in greater detail when organised community activities are discussed and when the processes of identification and selection of village based health workers are examined (Fig. 13). Nevertheless it is interesting to note that 95% of villages sampled in Sarawak indicate that they are willing to assist the mobile health team in its work (Table 19).

(3) Recommendations Regarding Mobile Health Teams

On the basis of recent studies the following recommendations are made regarding mobile health teams:

(1) Villagers prefer the team to stay for at least half a day even if it means a less frequent number of visits per month. Thus it is recommended that a mobile team should visit no more than 2 to 3 villages per day.

(2) The best times for work with villagers in the underserved areas is after 2.00 p.m., and in the case of longhouses in Sarawak, the best time for health education is from 7.00 p.m. to 9.00 p.m. when the whole community gathers on the *ruai* (verandah) of the longhouse.

Table 18

Number (%) of physical resources available as site of mobile clinic in 191 villages in Sarawak according to ethnicity

Ethnic Group	No. of villages surveyed	Type of place available for mobile clinic*						
		School	Community Hall	*Penghulu* Hall	Prayer House	*Ruai* (verandah)	Others	Total
Iban	97	19	4	-	4	73	4	104
Bidayuh	23	2	7	-	-	4	11	24
Malay	15	5	3	-	3	3	4	18
Chinese	8	4	1	-	-	-	-	5
Others	42	8	3	2	3	21	3	40
Mixed	6	1	3	-	-	2	1	7
Total	191 (100%)	39 (20%)	21 (11%)	2 (1%)	10 (5%)	103 (54%)	23 (12%)	198

* more than one place may be available in any one village.

Table 19

Number (%) of villages indicating ability or inability to help mobile health team in a sample of 191 villages in Sarawak

Ethnic Group	No. of villages surveyed	No. unable to help	No. able to help mobile team in:		
			Spreading information	Setting up clinic	Providing manpower
Iban	97	1	95	94	94
Bidayuh	23	2	22	20	20
Malay	15	1	15	15	15
Chinese	8	1	8	8	8
Others	42	4	42	39	34
Mixed	6	0	6	6	6
Total	191 (100%)	9 (5%)	188 (98%)	182 (95%)	177 (93%)

It is therefore recommended that mobile teams should, as far as is possible, work from 2.00 p.m. to 9.00 p.m.

(3) Without exception all villages studied in Peninsular Malaysia, Sabah and Sarawak, preferred the mobile team to stay overnight in their villages as is often done by riverine teams. Consequently, it is recommended that, wherever possible, a mobile team should arrange to spend the night in a village and utilize the opportunity to carry out health education and other health promotive and preventive activities.

(4) 95% of the people living in 95% of villages sampled (Table 19) felt that some "mobiliser" or village based health worker would be helpful in assisting in the spread of information, setting-up of the clinic, and in the conduct of clinic activities. Along the same lines, 87% of health staff (doctors, dental surgeons, paramedics and auxiliaries who have worked in mobile teams) felt that a "mobiliser" in the form of a village based health worker would be an asset to the mobile team in its work in the underserved areas. It is thus recommended that village based health workers(VBHW) be recruited in the underserved areas to facilitate the work of the mobile health team. The use of V.B.H.W. will be elaborated in a later section.

(5) On any particular day about 4% of villagers are ill. (The operations research study of 1972 reported that there are at least 25 per thousand ill healths per day in the community). Thus a mobile team visiting a village fortnightly can expect to handle only a total of 8% of illnesses that occur during the month. Table 20 shows that 7.7% (16) of first consultations in an underserved area were with the

Table 20

Source of first consultation for illnesses of villagers in 191 villages in Sarawak according to ethnicity

Ethnic Group	No. of villages surveyed	Source of first consultation for illness*					
		Mobile health team	Traditional Medicine-men	Traditional Birth Attendant	Self medication	Others	Total*
Iban	97	6	28	2	49	22	107
Bidayuh	23	2	9	-	7	5	23
Malay	15	3	10	1	5	1	20
Chinese	8	-	3	-	4	2	9
Others	42	4	11	-	13	14	42
Mixed	6	1	2	-	2	1	6
Total	191	16	63	3	80	45	207

* more than one choice is possible as villagers may be using multiple sources.

mobile team. Consequently, it will be seen that 92% of illnesses have had to be managed by other means, namely, self-medication (39%), traditional medicine-men (30%), traditional birth attendants (1.5%) and others (22%). It is thus not surprising to note that about 80% of individuals seen by mobile health teams and the flying doctor service are not ill but are villagers requesting for medicines in anticipation of ill health during the time (92% of the year) when the mobile team will not be available, self-medication accounting for 39% of first treatments. It is therefore recommended that, in areas beyond the one hour isochron, particularly in Sabah and Sarawak there being few such areas in Peninsular Malaysia, first aid and simple curative medicine be taught to village based health workers (V.B.H.W.) selected by the community. It is also recommended that the mobile health teams and the flying doctor service place less emphasis on curative medicine (since 80% of persons seen are not ill) and more on prevention, community education, and the supervision of V.B.H.W. This recommendation is elaborated in a later section.

(6) With the exception of a few negligible instances, mobile health teams are not able to provide maternity services at the time of delivery in the underserved areas. In areas beyond the one hour isochron the majority (70 to 100%) of deliveries are conducted by traditional birth attendants. Inspite of the fact that 40% of underserved villages have populations of less than 100, 52% (Table 13) of villages have traditional birth attendants. It is thus recommended that traditional birth attendants in the underserved areas beyond the

one hour isochron be trained. This will be further discussed in paragraphs that follow.

6.3 The Role of the Family

The basic unit of the community that participates in the Community Health Renewal Movement will be the family whose role is to contribute towards its own health and thus to that of the community as a whole. This role has been outlined in Table 17 which lists the specific task of the family in respect of each activity category described. In summary, the role of each family can be said to include:

(1) Personal cleanliness and the practice of health promoting activities and the avoidance of disease promoting activities, e.g. smoking, indiscriminate defaecation, etc.

(2) Cleanliness of home and compound, and home improvements.

(3) Cultivation of food supplies and the practice of sanitary food storage, preparation, and good eating habits.

(4) The practice of basic maternal and child care.

(5) Utilization of the available health facilities including services directed to promoting health, preventing and controlling disease and the rehabilitation of the sick and disabled.

6.4 Organized Community Actitivies

Two basic categories of organized community activities can be recognized. In the first place, there are the coordination and liaison activities that occur between the health agency and the community leaders.

In many ways these can be described as activities that are carried out at the "policy and political level" of the community. At this level, health staff, representing the health agency, discuss and negotiate with community leaders to determine the needs and demands of the community, the processes they are prepared to sanction and support, and the systems of control they agree to use to ensure that mutually acceptable objectives can be achieved. Table 21 shows the type of community leaders selected by a sample of 191 villages in Sarawak as leaders to coordinate village activities with those of the mobile health team, 73% being village headmen.

In the second category can be grouped all organized community activities that arise from the policies already sanctioned in earlier negotiations between the health agency and the community leaders. These would include the actual training, utilization, supervision and evaluation of village based health workers so long as these processes come within the limits of policy decisions already agreed to in earlier negotiations. This level can be described as the "implementation level" of the community.

It is imperative that health staff, particularly members of the mobile health team, recognize these two levels at which they must operate, namely, a policy level asssociated with community leaders, and an implementation level closely associated with their own day-to-day function and the function of village based health workers (V.B.H.W.) under their supervision. One of their first tasks will therefore be to identify and work with the leaders of the community. Such leaders could include local chiefs including territorial, tribal and native chiefs such as the *penghulu, temengong, pengelima* and *menteri,* local headmen such as the *ketua kampung*

Table 21

Number (%) of villages according to type of community leader chosen to coordinate activities of the village and mobile health team in a sample of 191 villages in Sarawak

Ethnic group	No. of villages surveyed	Type of community leader chosen to coordinate activities with mobile team:*					
		Chairman of committee (J.K.K.K.)	*Penghulu* or native chief	Village headman	Teacher	Others	Total*
Iban	97	8	7	79	10	13	117
Bidayuh	23	2	-	20	2	5	29
Malay	15	1	7	6	4	6	24
Chinese	8	-	1	2	5	3	11
Others	42	-	4	28	1	16	49
Mixed	6	-	-	5	-	1	6
Total	191 (100%)	11 (6%)	19 (10%)	140 (73%)	22 (12%)	44 (23%)	236

* more than one type of community leader may be chosen by any particular village.

and *tuai rumah*, religious leaders such as the *imam*, *tuai burong*, *lemambang*, village committees including the J.K.K.K., traditional medicine-men, traditional birth attendants, school teachers, policemen and others recognized by the community as their leaders.

In respect of the utilization of village based health workers (V.B.H.W.), community leaders must be consulted particularly in regard to the identification of manpower resources for used as V.B.H.W. and the actual selection of specific individuals for training as V.B.H.W. A schematic representation of the processes by which V.B.H.W. are identified, selected, trained, utilized, supervised, retrained and evaluated, is shown in Fig. 13.

Once V.B.H.W. have been identified and selected by the community, each V.B.H.W. should receive basic training in one of at least 4 special areas, namely, simple maternal and child care, simple curative medicine and first aid, home economics, and simple sanitation. In other words, each V.B.H.W. is at least equipped with some special but simple skills directly useful to the community he comes from. It is quite conceivable that a V.B.H.W. might be trained in more than one special area. Thus the V.B.H.W. chosen to receive training in simple maternal and child care could also receive training in first aid, similarly another could receive additional training in home economics. In areas that are within the one hour isochron, and most underserved areas in Peninsular Malaysia fall into this category, there is no need for any V.B.H.W. to be trained in simple curative medicine and the V.B.H.W. merely receives training in first aid.

The V.B.H.W. can be trained in small groups as this is not only more economical but the educational effects of small groups is better. A size of 6 to 12 would be ideal. They should be trained as near to their own villages as is possible. The nearest *klinik desa* or health centre would be an ideal site. Some practical training must also be conducted in the village itself. Training can be conducted by a small mobile group of specialist teachers but members of the mobile health team and the flying doctor service team, who will be responsible for their supervision, retraining and evaluation, must be involved and participate in the basic training of V.B.H.W.

(1) Basic Training in Maternal and Child Care

It is quite possible that a housewife might be selected by the community for special training in simple maternal and child care. However, by and large, it will be the traditional birth attendant who is identified for this special training. There are a number of reasons to support and recommend that traditional birth attendants be trained in simple hygiene and cleanliness, recognition of the value of antenatal care, of conditions that require referral, safe delivery of the normal pregnancy, postnatal care and simple elements of child care and good nutrition, and family planning. It is now a well established fact (Chen, 1975) that training traditional birth attendants lowers the neonatal and perinatal mortality and the mortality associated with tetanus neonatorum (Table 22).

Chen, P.C.Y. (1975) Midwifery services in a rural Malay community, M.D. Thesis, University of Malaya, Kuala Lumpur.

Table 22

Mortality per 1000 live births

by type of mortality

and type of midwife

Type of mortality	Mortality per 1000 live births		
	Government midwife	Trained TBA*	Untrained TBA*
Neonatal mortality	17	29	57
Perinatal mortality	41	54	69
Neonatal tetanus	-	12	34

* TBA - traditional birth attendant

Source: Chen, P.C.Y. (1975) Midwifery services in a rural Malay community, M.D. Thesis, University of Malaya.

It has also been shown (Chen, 1976) that training the traditional birth attendant also reduces the proportion of mothers who continue harmful traditional practices, and increases the proportion who attend antenatal clinics. Further it has been shown (Chen, 1977) that training the traditional birth attendant decreases the proportion of deliveries conducted by them while it correspondingly increases the proportion of deliveries attended by trained government midwives. Thus not only is it pragmatic to recognize that traditional birth attendants are in reality responsible for a very large proportion of deliveries in underserved areas beyond the one hour isochron, it is also essential to recognize that they have useful and important skills that, if brought up to a higher level, can be a useful resource in the provision of maternal and child care in the underserved areas. As noted earlier 52% of villages in the underserved areas of Sarawak (Table 13) have traditional birth attendants.

Part of the training in maternal and child care will be covered in the section on home economics and will not be dealt with here.

(2) Basic Training in First Aid and Simple Curative Medicine

As noted earlier, it is not likely that there is a need for V.B.H.W. in Peninsular Malaysia to be trained in simple curative medicine as the bulk of underserved areas in Peninsular Malaysia are relatively

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Chen, P.C.Y. (1976) An assessment of the training of the traditional birth attendant of rural Malaysia, *Med. J. Malaysia, 31,* 93 - 99.

Chen, P.C.Y. (1977) Incorporating the traditional birth attendant into the health team: Malaysian example, *Trop. Geogr. Med., 29,* 192 - 196.

close to static health facilities. First aid is about all that is required.

However, in Sabah and Sarawak, due mainly to the low density of population, the lack of communication and transportation systems and the higher level of poverty, effective distances and isochrons are relatively short. Consequently large areas are relatively far away from static health facilities and will continue to remain beyond the limits of a one hour isochron (travelling time). In such situations, it will be necessary to develop V.B.H.W. who can provide some simple curative medical care in addition to first aid. Both young literate men and women as well as traditional medicine-men are potentially useful V.B.H.W. in first aid and simple curative medicine. However as this is relatively untried in Malaysia a number of field trials or pilot projects might be conducted to test the value of this concept in the Malaysian situation.

Along these lines a pilot scheme to train the Iban *manang* (traditional medicine-man) of Sarawak as a primary health care worker with simple skills in rural curative medicine, health promotion and prevention, simple sanitation including rudimentary knowledge of what maternal and child health is all about, was begun in May 1979 (Chen and Tan, 1979). Preliminary evaluation indicates that the scheme is popular and acceptable to the communities served, that referrals from the traditional medicine-men to the *klinik desa* at the core of the 300 square

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Chen, P.C.Y. & Tan, Y.K. (1979) The Iban manang in primary health care (mimeographed document).

mile underserved area has increased, and that the out reach of the static *klinik desa* in terms of case detection of malaria and tuberculosis by blood smears and sputum smears has increased, since the traditional medicine-men were trained and requested to collect such smears, there being an average of 150 blood smears sent in by the medicine-men each month. For the first time villagers, living in the remoter underserved areas of this pilot project area, receive modern medicines as opposed to traditional medicines at primary contact, the average number of contacts with modern medicine being 30 - 40 per medicine-man per month. Traditional medicine continues as a complementary practice to "treat the underlying cause such as the loss of *semangat* or black magic" while modern medicine is prescribed to remove symptoms such as fever, cough, pain, diarrhoea and vomiting.

At the same time as the pilot project to train the Iban *manang* was launched, 4 youths, 2 men and 2 women, were also similarly trained as primary health care workers. Preliminary evaluation indicates that they function as well as the *manangs*. As of early 1980, it has not been possible to definitely pin-point if they are as acceptable as the *manangs*. They obviously have less authority and are not yet regarded as social leaders whereas the *manangs* are socially accepted as one of a set of 3 leaders in the longhouse, the other two being the *tuai rumah* (headman) and the *tuai burong* (augur), the ritual head of the longhouse. On the other hand, the youths are more readily trained and maintain better records of their medical contacts.

In Sabah and Sarawak, particularly in remote areas that will remain underserved for many years to come, it is recommended that applied

research pilot projects to train V.B.H.W., in both first aid and simple curative medicine, be initiated and evaluated. In particular the use of traditional medicine-men and youths as V.B.H.W. be evaluated among the remoter tribes such as the Kayans, Kenyahs, nomadic Penans and others in Sarawak, and the Rungus Dusun, Muruts and remoter tribes of Sabah. Areas that are likely to be served within the next few years will not need such V.B.H.W. and preference should be to train V.B.H.W. in home economics, simple sanitation and simple MCH.

(3) Basic Training in Home Economics

Another special area in which V.B.H.W. can acquire important skills is in the area of home economics. Knowledge and skills in food production (home vegetable gardening), food preparation and storage, and the basics of good nutrition, child care and personal hygiene are useful skills that can be transmitted to the rest of the community. Skills in pre-school education and pre-school child care would be important components of this special area. Knowledge of the value and schedules for immunization will be important. She should also learn how to assist the mobile team in achieving high rates of acceptance of immunization and family planning.

(4) Basic Training in Simple Sanitation

Villagers, particularly youths, can be trained to assist the sanitarian (P.H.O., R.H.S.) develop sanitary water supplies, and the sanitary disposal of excreta, refuse and sullage water. They can be trained and supervised by the sanitarian who should provide them with all

the necessary technical support. They should also act as a liaison between the community and the mobile team and mobilize both local materials as well as manpower in achieving a healthier physical environment.

(5) Additional Training as a "Mobiliser"

As stated previously, a V.B.H.W. can be trained in one or more of the 4 basic areas described above. Thus, a V.B.H.W. may receive training in simple sanitation and first aid, or in simple M.C.H. and home economics. Further certain areas may be irrelevant particularly simple curative medicine in those underserved areas within an hour's distance from a static health facility, as is seen in many underserved areas of Peninsular Malaysia. Notwithstanding the above, all V.B.H.W. should be trained as "mobilisers". These universally required "mobiliser" skills would include the ability to assist in:

- the functioning of the mobile health team,
- informing villagers of the planned arrival of the mobile health team,
- gathering together antenatal mothers, children for immunization, school children for dental treatment and others as and when campaigns are mounted,
- case detection and referral of cases particularly of malaria by blood smears and tuberculosis by sputum smears,
- reporting, investigation and control of outbreaks,
- keeping records and compilation of statistics,
- small group discussions, health education and the dissemination of health information,

- maintaining a link between the community, including its leaders and the village committee, and the health agency.

(6) Utilization of V.B.H.W. and Payment of Allowances

Trained V.B.H.W. cannot be expected to contribute their time and efforts without some compensation. From past experience it is a well known fact that "volunteers" actually subsidise the system at their personal cost both in terms of time, which could be spent in gainful employment elsewhere, and in terms of actual funds for transport, materials, entertainment of visitors, other villagers and the sick who may stay overnight in their homes.

It is therefore necessary that each V.B.H.W. be paid a small allowance equivalent to what is paid to KEMAS (community development) workers and RISDA (agricultural extension) workers at the village level. In the Iban *manang* (traditional medicine-men) pilot project, each V.B.H.W. receives from M$30.00 to M$40.00 per month. This is the equivalent of transport cost and 2 days' per diem since the V.B.H.W. are required to report to the Entabai *Klinik Desa* once a month and this takes them away for 2 days from their longhouses. In other words they receive nothing for their actual work but are merely reimbursed for attending the supervision and retraining sessions held once a month. Consequently, it is recommended that V.B.H.W. be paid the same rates as KEMAS and RISDA village workers, that is, from M$60.00 to M$80.00 each.

(7) Supervision, Retraining and Evaluation of V.B.H.W.

Village based health workers (V.B.H.W.) will need to be regularly supervised and retrained during the course of their work. As outlined in Fig. 13, supervision can be carried out regularly by:

- the mobile health team,
- the flying doctor service, and by
- reporting to the nearest *klinik desa* staff if no mobile services are available in the area.

At each visit, the supervisory staff member should take the opportunity to reinforce the special skills learnt earlier and if necessary provide on the spot retraining. Records and statistics should also be examined and feedback provided regarding the interpretation and value of such records and statistics. "Mobiliser" activities should be reinforced and material supplies and logistical support provided. Thus drugs, slides, sputum collection cups, spatulas, sanitation materials, etc. should be restocked. Instructions and any special educational materials should also be given. If necessary, particularly in the initial stages, the role and limitations of the V.B.H.W. should be explained to the community. The opportunity can also be taken to pay the V.B.H.W. his monthly allowance and to evaluate his performance in terms of the objectives of the project itself.

Evaluation of performance should not be performed at each visit. However at least once a year supervisory staff should take stock of the performance of the V.B.H.W. in terms of the stated objectives of the Community Health Renewal Movement. If the evaluation indicates that a

particular V.B.H.W. is not able to meet minimum performance objectives, then it will be necessary to request the community to identify additional manpower resources and to select a new potential V.B.H.W. for training as shown in Fig. 13.

It should be re-emphasized that V.B.H.W. cannot and must not be expected to function without supervision, retraining and regular evaluation. The lack of the above is the single most important reason for the failure of many previous attempts to use V.B.H.W.

The present role and *modus operandi* of mobile health teams should be re-examined, as stated in the previous section, to enable them to be more effective in the underserved areas. At the same time the role and *modus operandi* of both the mobile health team as well as the flying doctor service needs to be redefined so as to enable them to supervise, retrain and evaluate V.B.H.W. as well as participate in a more effective manner in community education, the third element of the Community Health Renewal Movement. It has already been noted that about 80% of persons appearing for "treatment" at clinic sessions held by mobile health teams and the flying doctor service are not ill at all. Far too much emphasis is placed by both on curative medicine and far too little on prevention, particularly in respect of maternal and child health, nutrition, family planning and communicable diseases, and on health promotion through community education. A major additional contribution that can be made by both the mobile health team and the flying doctor service will be their role in the supervision, retraining and evaluation of V.B.H.W. Their outreach and impact will be far greater than at present.

6.5 Community Education

In addition to the use of the mobile health team and organized community activities already discussed, the third element of the Community Health Renewal Movement consists of community education. As indicated in Table 17, this basically consists of

- Rural broadcasts,
- School health education, and
- Small group education carried out by the mobile health team assisted by village based health workers.

(1) Rural broadcasts

Health education information transmitted through the radio can reach fairly large numbers of the population in the underserved areas. A survey of the three category "C" (moderately severe) states of Pahang, Trengganu and Kelantan shows that in 38.2% of villages at least 20 - 50% of the households have a radio, and that in 11.6% of villages at least 50% of the households have radios. Happily, in the category "D" (severe) state of Sarawak, 75.4% of villages have at least 20 - 50% of its households with a radio, while in 39.8% of the villages at least 50% of their households have a radio (Table 23).

However rural radio broadcasts, to be effective, must be carefully planned not only in terms of content and presentation but also in terms of cultural identification, duration and timing. A survey of 191 villages in Sarawak shows that the most suitable time for rural radio broadcasts is from 6.00 p.m. to 8.00 p.m., little distinction being made

Table 23

Number (%) of villages according to the proportion with radios in the four states of Sarawak, Pahang, Trengganu and Kelantan

State	No. (%) of villages with the following % of households with a radio:						Total No.of villages surveyed
	0 - 19%		20 - 50%		51 - 100%		
	No.	%	No.	%	No.	%	
Sarawak	47	(24.6)	68	(35.6)	76	(39.8)	191
Pahang	34	(41.5)	42	(51.2)	6	(7.3)	82
Trengganu	107	(46.1)	80	(34.5)	45	(19.4)	232
Kelantan	340	(73.3)	85	(18.3)	39	(8.4)	464
Total	528	(54.5)	275	(28.4)	166	(17.1)	969

as to whether this is on a weekday or on a weekend (Table 24). It also indicates that the most suitable duration of a presentation is from 15 to 30 minutes. On no account should it exceed 30 minutes (Table 24).

Rural broadcasts, and for that matter all forms of community education programmes, should have a strong element of cultural identification for the target group. Language, anecdotes, advice, background music and sounds, should all be culturally relevant if the message is to be effective.

The medium of television as a means of rural broadcast is not particularly important at the moment as the majority of underserved areas still do not have television sets. However, the situation is rapidly changing as the government begins to increasingly supply remote villages with television sets particularly in the states of Sabah and Sarawak. In Sarawak where the majority of people in the underserved areas congregate in communal longhouses, television can become a very important source of social change and education. It is thus important for the Community Health Renewal Movement to prepare to harness this great potential that is beginning to become available particularly in Sabah and Sarawak.

(2) School Health Education

The children of today are the adults of tomorrow and are therefore the most important target particularly in terms of health promoting life-styles. Much has been written on this topic. Suffice it to say that school health education is a multifacetted topic with possible contributions through textbooks, radio, television, mass media, school teachers, village based health workers, mobile health teams, parents, community leaders,

Table 24

Number (%) of villages indicating the most suitable times and duration of radio broadcasts in a sample of 191 villages in Sarawak

Ethnic Group	No. of villages surveyed	No. (%) of villages indicating for radio broadcast:*							
		Most suitable times:				Most suitable duration of talk (mins.)			
		6 - 8 a.m.	6 - 8 p.m.	Week-days	Week-ends	1 - 14	15 - 29	30 - 59	60 or more
Iban	97	5	90	18	18	23	61	5	6
Bidayuh	23	1	22	-	-	7	12	2	2
Malay	15	2	12	4	4	8	7	-	-
Chinese	8	-	8	2	-	3	6	-	-
Others	42	3	38	5	8	12	28	2	-
Mixed	6	-	6	-	-	3	2	-	1
Total	191 (100)	11 (6)	176 (92)	29 (15)	30 (16)	56 (29)	116 (61)	9 (5)	9 (5)

* only positive responses included.

religious leaders, agricultural workers and a host of others. All these individual aspects are important and contribute to the whole and should be developed in the underserved areas as well as the served areas of Malaysia.

(3) Small Group Education

Much information, regarding health promoting life-styles, prevention of disease, early case detection, control and management of disease, particularly in respect of maternal and child health, nutrition, family planning and the communicable diseases, can be best transmitted by small group education be it through talks, discussions, demonstrations, seminars, workshops, forums, or dialogue sessions. Here the role of the mobile health team, the flying doctor service and the village based health workers are particularly important. Up to this point, there seems to be an over emphasis by mobile health teams and the flying doctor service on curative medicine and the provision of drugs to many who are not ill but may become ill sometime in the future. As noted earlier, about 80% of persons seeking "treatment" with mobile health teams and the flying doctor service are not ill at all. Far more emphasis needs to be placed on prevention, particularly immunization, antenatal care and family planning, and health promotion, particularly community health education through school health education and small group discussions.

6.6 Selection and Training of Peripheral Health Staff

A number of important factors underlie the effectiveness of peripheral health staff in the underserved areas. As mentioned above,

there is a need for the community education element as well as the other aspects of the Community Health Renewal Movement and Primary Health Care in general to possess a strong cultural identification with the community being served. As has been suggested, the building design, the times during which mobile health teams should function, the content and method of presentation of community education programmes, the manner in which health staff relate to community leaders and to the community itself, are all examples of crucial factors that can foster a strong cultural identification of health services by the communities being served.

To further assist in the development of a strong cultural identification of the community with the health services being introduced into the underserved areas, it is recommended that wherever possible, peripheral level staff being recruited for *klinik desa*, be recruited from the same or neighbouring communities that they will eventually be serving. In addition to being culturally akin to the community being served, such staff will be in a better position to carry out community education and will be less likely to want to be relocated in towns or in the better served areas of the country.

Wherever possible, it is also recommended that the training of health staff, as well as of village based health workers, be conducted as close to their eventual area of operations as can be achieved. Thus for example, the training of auxiliaries being recruited to serve in the underserved areas of Sabah and Sarawak should be conducted in that respective state, preferably in the same Division as their ultimate places of work, and never in faraway places or in the larger towns. The curriculum should always include basics in the social sciences and community development.

7. SOME UNANSWERED QUESTIONS REGARDING THE PRESENT HEALTH CARE DELIVERY SYSTEM

In the foregoing sections, the problem of the underserved areas has been examined and, based on the available evidence, a set of recommendations have been made and set out in Section 5 and Section 6. However, both in the underserved areas as well as the served and overserved areas of Malaysia, a large number of questions regarding the present health care delivery system remain unanswered. Many assumptions have and continue to be made whenever evidence is unavailable but to strengthen the existing and future health care delivery system in both served, underserved and overserved areas, specific studies must be made to confirm or refute many of these assumptions upon which so much continues to be based. In the paragraphs that follow, the most glaring of these problems and assumptions are listed for immediate and urgent study. Findings can then be translated into specific action programmes or recommendations for incorporation into the Mid-Term Review of the Fourth Malaysia Plan in 1983.

In the conduct of these in-depth studies it is recommended that the support of international health agencies, particularly the United Nations Children's Fund and the World Health Organization, be sought.

7.1 Hospital Services

(1) The bed occupancy rates of many district hospitals remain very low, whereas those of the general hospitals are high. For example, the Tangkak, Pontian and Bentong District Hospitals have occupancy rates of 28%, 40% and 38% respectively indicating that they are underutilised.

Q. What are the reasons underlying the fact that district hospitals remain relatively poorly utilised? Are the wrong type of services being offered?

(2) It seems a well established fact that hospitals are very much curative oriented and consequently seem to miss excellent opportunities to provide preventive services, and health promotion through individual and community health education.

Q. What is the future service role of district hospitals in terms of the total community they purport to serve? Is there a distinct community role that has hitherto been neglected?

(3) Out-patient services in many hospitals are overcrowded and doctors are often reduced to spending no more than 3 to 4 minutes per patient, thereby having little time to utilise their skills for the more seriously ill patient. The majority of illnesses are made up of about a dozen common illnesses. Some countries, including highly developed ones, utilise nurse-practitioners to handle these simple illnesses with great success.

Q. What types of illnesses are seen in the out-patient clinics in Malaysia and are not the vast majority of these patients so mildly ill that a paramedical such as a hospital assistant is competent to manage them, leaving only a small minority of more serious and exotic illnesses for the skilled doctor whose skills can be better used elsewhere?

Q. *Will not such a step produce greater job satisfaction for out-patient doctors and eventually be a more efficient use of available manpower?*

(4) Many out-patient clinics, particularly in general hospitals, are crowded, impersonal and far from the homes of patients.

Q. *What is the most efficient size for an out-patient clinic? Would not a number of small out-patient clinics scattered in a town, and thus closer to homes, be more efficient?*

(5) There does not seem to be a clear job career for a doctor who chooses to be an out-patient doctor.

Q. *Can a distinct career structure be created with clear speciality skills and speciality examinations for doctors who wish to devote themselves to ambulatory patient care? Should not the family, the community and prevention be the main focus of ambulatory care doctors?*

7.2 Health Centres and *Klinik Desa*

(1) In the served areas, there are several health centres and *klinik desa* that appear to be underutilised.

Q. *Why are these static health facilities underutilised? Is there a relationship to their distance from other static health facilities such as hospitals? Is this relationship one of travelling time (isochrons) or a geographical one (miles)? Is the location of the static facility inappropriate from the point of view of population centres? Is the problem related to a lack of cultural identification of the system by its potential users? Are the wrong type of services being offered? Are the services acceptable?*

(2) Transportation is sometimes said to be unavailable in a health centre or *klinik desa* because of vehicular breakdowns.

Q. *Would it be more appropriate to locate the newest and best vehicles at the peripheral level, and the oldest vehicles at the larger centres and hospitals, as repair facilities, spares and multiple vehicles are more readily available at the larger centres and hospitals?*

Q. *Would it be more appropriate to permit District Medical Officers, Area Health Unit Medical Officers (Sabah) and Divisional Medical Officers (Sarawak) the authority and funds to carry out these repairs instead of J.K.R. (Public Works Department)?*

7.3 The Role of Various Categories of Health Staff

(1) Even though some studies have been carried out on the multipurpose community nurses (*jururawat desa* of Peninsular Malaysia, *jururawat masyarakat* of Sarawak, and the rural health nurse of Sabah) a detailed evaluation of the training, role and capabilities of the 3 types of multipurpose community nurses has not been performed. It is thus recommended that all 3 types of multipurpose community nurses in the 3 regions be evaluated. However, it is also an established fact that none of the 3 types of nurses are trained to provide advice on sanitation, nor are they trained, like the hospital assistant of Sarawak, to perform emergency dental extraction.

Q. *Is the training of the 3 types of multipurpose community nurses similar? Is the training appropriate and sufficient for their tasks at the klinik desa level? Can these be refined so that their effectiveness is further enhanced?*

Q. *What is the best mode of transportation for use within their operational areas by the J.D. in Peninsular Malaysia, the J.M. in Sarawak and the R.H.N. in Sabah?*

Q. *If outboard motors are to be used, can the J.M. of Sarawak and the R.H.N. of Sabah be trained to be outboard motor drivers and be paid an appropriate allowance for doing so?*

(2) Hospital assistants in Sarawak are trained to conduct deliveries, manually remove retained placentas, and perform emergency dental extractions. These added abilities have been found to be exceedingly useful in the remote rural areas of Sarawak.

Q. *Is the training of the hospital assistant appropriate for the tasks required of him in the underserved areas of Peninsular Malaysia, Sabah and Sarawak? Should not all hospital assistants assigned to the underserved areas be proficient in maternity care and emergency dental extraction?*

(3) The sanitarian, P.H.O., R.H.S.,is practically a single purpose worker, with no training in simple curative medicine or simple maternal and child care. Consequently his support of the rest of the programme is grossly limited.

Q. *Should not the P.H.O./R.H.S. be trained at least in the basics of simple curative medicine, and maternal and child care, so that he can offer appropriate health information and education, as well as be of some value in the provision of simple curative medicine, and maternal and child care, particularly since he tends to have to move on his*

own, keeping a separate schedule from other members of the health team?

(4) For cultural and historical reasons, the two-man *klinik desa* of Peninsular Malaysia has always been staffed by two *jururawat desa* (women). In this report, it has been recommended that in Sabah and Sarawak, where culturally this can be accepted, a male J.H.A. and a female J.D./R.H.N. be assigned to a two-man *klinik desa*, with the possibility that, if circumstances warrant it, any other combination may be tried, e.g. a J.M. and a R.H.S. It is recommended that field trials be conducted with different combinations of staff to test if any one combination is better than the rest.

Q. *What is the most appropriate combination of staff for a given set of circumstances at the klinik desa level in Peninsular Malaysia, Sarawak and Sabah?*

(5) Auxiliaries are trained to function at a practical level and are often alone. A handbook or manual that serves as a guide to the many common problems they will meet in the field is an essential part of the support they will need. Yet very few auxiliaries are provided with any manuals. It is recommended that practical manuals be made for the use of each category of health staff.

Q. *What practical common problems do the auxiliaries have? Can these be compiled together with their solutions into practical manuals for each category of auxiliary?*

7.4 Identification, Acceptability and Cost Effectiveness of the Health Care System

(1) Varying types and levels of health care are being provided through mobile teams, the flying doctor service, *klinik desa*, midwife clinics, dispensaries, health centres, district and general hospitals.

Q. *For each of these component parts of the Health Care Delivery System, what is the extent of identification of the system by its users and potential users? What is the extent to which they accept that particular type of service offered? What is the comparative cost effectiveness of each component part?*

(2) It is assumed that people living within the limits of the operational area of a static health facility, particularly in the urban sector, are served.

Q. *What proportion of urban dwellers, particularly the urban poor, living in the shadow of a large urban hospital receive the basic minimum health care services required by all individuals and offered as a minimum in the rural underserved areas?*

Q. *Do they find the urban services, including the services offered by large urban hospitals, appropriate?*

7.5 The Flying Doctor Service

(1) A look at the statistics on the use of the Flying Doctor Service does not show that about 80% of attendances are by persons who are not ill at that time but who are there to collect medicine in case they subsequently should fall ill. Relatively little emphasis is placed

on prevention and health promotion. With the use of V.B.H.W. in the underserved areas, the Flying Doctor Service will now be required to supervise them.

Q. *How can the modus operandi of the Flying Doctor Service be altered so that it pays more attention to prevention, particularly immunization, antenatal care, family planning, case detection of malaria, tuberculosis and malnutrition, and health promotion, in the form of community education, and includes in its duties the supervision of the V.B.H.W.?*

(2) At the moment, particularly in Sabah, the Flying Doctor Service does not provide any supervision of the remoter V.G.S.C. or dispensaries.

Q. *Would it not be appropriate for the Flying Doctor Service to provide regular supervision of the remoter peripheral clinics by adjusting its modus operandi (particularly since 80% of attendances are by persons who are not ill at all)?*

7.6 Radio-telephones

(1) In this report, mention is made of the need for radio-telephones to be installed in the remoter *klinik desa* so that the link between V.B.H.W., mobile team, *klinik desa*, health centre and the hospital system can be maintained. However, field experience seems to indicate that no satisfactory system of radio-telephones have been developed in the rural areas. Mention is made of the need to train staff in the correct use of the equipment, the need for maintenance and the need to carry out field trials on varying types of equipment.

Q. *What is the most appropriate power source for such radio-telephones? Should the power source be a "bicycle", a battery with a generator, or a battery with solar-cells?*

Q. *What is the appropriate system of maintenance?*

7.7 Community Health Renewal Movement

(1) In this report, which concerns itself only with the underserved areas, recommendations have been made regarding the development and strengthening of the Community Health Renewal Movement in the underserved areas. However, from the experience of many other countries, it would seem that the Community Health Renewal Movement is equally relevant to the served areas as well. It is thus recommended that similar in-depth studies be conducted on the need for the extension of the Community Health Renewal Movement into the geographically served areas.

Q. *Is there a place for the Community Health Renewal Movement in the served areas of Malaysia? In what form should this be developed? Would not the urban poor be particularly in need of a parallel movement? Would it not further strengthen the existing health care delivery system in the served areas?*

(2) In this report, mention is made of the need to train V.B.H.W. in simple curative medicine and first aid in the remoter communities of Sabah and Sarawak. The pilot project to train the Iban *manang* (traditional medicine-man) of Sarawak is also mentioned and it is suggested that similar pilot projects be carried out among various remote and nomadic tribes in Sabah and Sarawak.

Q. *Would it be appropriate to train traditional medicine-men, in other tribes in Sabah and Sarawak, as V.B.H.W. in simple curative medicine? Would it be more appropriate to train traditional medicine-men or young literate men and women as V.B.H.W. in simple curative medicine? What is the most appropriate curriculum and form of training?*

(3) Four basic areas of training for V.B.H.W. are mentioned and it is suggested that a flexible combination suitable for each particular V.B.H.W. be permitted.

Q. *In the field, what combinations of these 4 basic areas are the most common and which are the manpower resources in the community that best fit each of these combinations or basic areas?*

Q. *Based on field experience, are there other special areas that need to be developed?*

(4) There is a need for simple practical handbooks or manuals, written in simple language, for the use of all 4 categories of V.B.H.W.

Q. *What common practical problems does each category of V.B.H.W. have? Can these problems together with their solutions be compiled into simple practical manuals for use by the V.B.H.W.?*

Annex 1

Staffing Pattern of the Three-tier Rural Health Unit of Peninsular Malaysia

	At the Main Health Centre (50,000 pop.)	At the Health Sub-Centre (10,000 pop.)	At the Midwife Clinic (2,000 pop.)	Basic Services
(a)	Medical & Health Officer	-	-	Medical care, Laboratory services, Health Education
	Hospital Assistant	Hospital Assistant	-	
	Dispenser	-	-	
	Male attendant (1)	Male attendant (1)	-	
(b)	Public Health Nurse	Public Health Nurse	-	Maternal & Child care, Communicable disease control, Laboratory services, Health Education
	Assistant Nurse (2)	Assistant Nurse (2)	-	
	Midwife (1)	Midwife (1)	Midwife (1)	
	Female attendant (1)	Female atendant (1)		
(c)	Public Health Inspector	-	-	Environmental sanitation, Health Education, Communicable disease control
	Public Health Overseer (1)	Public Health Overseer	-	
	Sanitation Labourer (2)	Sanitation Labourer (2)	-	
(d)	Dental Officer	-	-	Dental care
	Dental Nurse	-	-	
	Dental Surgery Assistant (1)	-	-	
	Dental attendant	-	-	
(e)	Clerk (1)	-	-	Administration and records
	Driver (2)	Driver (1)	-	
	Gardener (1)	Gardener (1)	-	

Annex 2

Staffing Pattern of the Health Centre of the Two-tier Rural Health Delivery System compared to that of the Main Health Centre of the Three-tier Rural Health Units

Staff	Original Main Health Centre	New Health Centre	Functions
Medical Officer	1	1	Team leader of preventive/ curative services
Hospital Assistant	1	1	Medical care, Health Education
Dispenser	1	1	Dispensary
Junior Laboratory Assistant	-	1	Laboratory service
Male attendant	1	2	
Public Health Sister	-	1	Maternal and child health care including family planning, school health, nutrition services, communicable disease control and health education
Public Health Nurse	1	1	
Assistant Nurse	2	3	
Female attendant	1	1	
Health Inspector	1	1	Environmental sanitation, control of communicable diseases and health education
Public Health Overseer	1	2	
Sanitation Labourer	2	4	
Driver	2	3	Ancillary duties
Gardener	1	1	
Watchman	-	1	

Annex 3

DEFINITIONS OF SELECTED TERMS

(1) TWO-TIER HEALTH CARE SYSTEM

In a two-tier health care system, the peripheral tier is the principle service tier while the central tier is concerned with providing a higher quality of service and comprehensive supervision of the peripheral tier (Fig. 2, 6, 7 and 12).

(2) *KLINIK DESA*

In the Malaysian context, a *Klinik Desa* must provide, at a minimum, simple curative medical care, maternity care and child care. It is also the basic peripheral unit of the two-tier system used in Malaysia. If a peripheral unit provides only maternity care it is known as a *Midwife Clinic*. If it merely provides curative medical care, it is known as a *Dispensary* or *Sub-dispensary*.

In the context of this report, a *Klinik Desa* (I) is a one-man clinic staffed by a multipurpose worker who can, at the minimum, provide simple curative medical care, maternity care and child care, whereas a *Klinik Desa* (II) is a two-man clinic staffed by two multipurpose workers whose combined skills ensure that, at a minimum, simple curative medical care, maternity care and child care are provided.

On the other hand, a *Modified Klinik Desa* is a *Klinik Desa* (I) or (II) together with a mobile health team which is based there.

(3) HEALTH CENTRE

In the Malaysian context, *Health Centres* are the central units in a two or three-tier system (Fig. 1 and Fig. 2). Health centres not only provide, as a minimum, comprehensive care including simple curative medical care, maternity care, child care, basic sanitation, communicable disease control but also provide comprehensive supervision in all these areas. Thus, at a minimum, it should have supervisory staff in curative medical care (hospital assistant), in maternal and child care (public health nurse or health visitor), and in sanitation and communicable disease control (public health inspector). Such a health centre would be a *Phase I Health Centre.*

If, in addition to the above, it provides an even higher quality of service and supervision and includes a doctor, a dental surgeon and other additional staff, it would be a *Phase II Health Centre.*

(4) SABAH-SARAWAK TYPES

Within the limits of the above definitions, variations in the interpretations of physical building types and staff categories is possible. Thus it will be noted that both *klinik desa* and health centres differ both in construction and staffing from region to region, and terminology would be appropriate so long as the usage is within the limits of the definitions.

However, in Sabah, the use of the term "health centre", to include clinics staffed only by a rural health nurse and a public health nurse or staff nurse, is erroneous as both the type of service and supervision is not sufficiently comprehensive as to fall within the limits

of the term *Health Centre*, and it is recommended that *Sabah "health centres"* be renamed *Klinik Desa* (II). Along the same lines, if a village group sub-centre (V.G.S.C.) in Sabah is staffed by a multipurpose auxiliary able to provide simple curative medical care, maternity care, and child care, it can be re-designated as a *Klinik Desa* (I).

Annex 4

LIST OF PERSONS WITH WHOM DISCUSSIONS WERE HELD

I. MINISTRY OF HEALTH

1. Tan Sri Dr. Raja Ahmad Noordin, Director-General of Health.
2. Hj. Dr. Abdul Talib bin Latiff, Director of Health.
3. Datuk Dr. Abdul Khalid Sahan, Director of Planning and Development.
4. Dr. Abdul Rahman bin Awang, Director of Dental Services.
5. Dr. Mehar Singh Gill, Acting Director of Medical Services (Hospitals).
6. Dr. Abdul Majid bin Tun Abdul Aziz, Director of Medical Services, Selangor.
7. Datuk Dr. Tow Siang Yeow, Director of Medical and Health Services, Johor.
8. Dr. Tan Yaw Kwang, Director of Medical Services, Sarawak.
9. Dr. Michiel K.C. Chan, Director of Medical Services, Sabah.
10. Dr. Abdullah bin Abdul Rahman, Director of the Public Health Institute.
11. Dr. Rattan Singh, Acting Director of Medical and Health Services, Trengganu.
12. Dr. Harbajan Singh, Deputy Director of Health.
13. Dr. Lim Ewe Seng, Deputy Director of Planning and Development.
14. Dr. Yoong Kin Poon, Deputy Director of Dental Services.

15. Dr. Joginder Singh, Deputy Director of Medical and Health Services, Kedah.

16. Dr. Chong Chee Tsun, Deputy Director of Medical and Health Services, Selangor.

17. Dr. Raj bte Abdul Karim, Assistant Director, Maternal and Child Health.

18. Dr. Peter Low, Assistant Director, Planning and Development.

II. PRIME MINISTER's DEPARTMENT

1. Datuk Mohd. Saffian bin Haji Abdul Majid, Director-General of Implementation and Coordination Unit.

2. Dr. Mohd. Noor bin Abdul Ghani, Director-General of Socio-economic Research and General Planning Unit.

3. Encik Ishak bin Che Long, Director of Community Development.

4. Dr. Engku Mohd. Anuar bin Engku Wok Abdul Rahman, Director, Malaysian Centre for Development Studies.

III. OTHER GOVERNMENT AGENCIES

1. Encik Shahadan bin Hj. Abdul Manas, Secretary, KEMAS (Community Development), Ministry of Agriculture.

2. Datuk Tengku Adlin, Deputy Director of Sabah Foundation, Sabah.

3. Mr. Paul Wong, Director of Community Development, Sabah.

Annex 5

TERMS OF REFERENCE FOR THE UNICEF CONSULTANT UNDERTAKING IN-DEPTH STUDIES IN THE UNDERSERVED AREAS

1. To study the Rural Health Services in Malaysia including the Community Health Renewal Movement in the underserved areas.

2. To carry out research studies considered likely to produce recommendations for strengthening of Community Health Renewal Movement in the underserved areas as well as to advise on the type of health care delivery system suitable for these underserved areas to be complemented in the Fourth Malaysia Plan (1981 - 1985).

3. To submit a report to the Ministry of Health, Malaysia, and UNICEF, incorporating the results of the above studies by the middle of 1980.