Human resources for health at the district level in Indonesia.

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Abstract

Background

In 2001 Indonesia embarked on a rapid decentralization of government finances and functions to district governments. One of the results is that government has less information about its most valuable resource, the people who provide the services, public and private, than it had before decentralization and at a time when new health challenges are facing the country.

Methods

We enumerated all healthcare providers (doctors, nurses and midwives), including information on their employment status and primary place of work, in each of 15 districts in Java.

Results

Provider density (number of doctors, nurses and midwives/1000 population) was low by international standards. Approximately half of all three professional groups were permanent public servants. Contractual employment was also important for both nurses and midwives. The private sector as the primary source of employment is most important for doctors and increasingly so for midwives. For those employed in the public sector, most doctors and nurses work in health centers while most midwives are located at village-level health facilities.

Conclusions

In the health system established after Independence the facilities established were staffed through a period of obligatory service for all new graduates in medicine, nursing and midwifery. The last elements of that staffing system ended in 2007 and the government has not been able to replace it. At the same time the private sector is expanding and will be of increasing importance in the coming decades. Despite the promises of decentralization the central government has control over essentially all health staff at the district level marking a return to the situation 20 years ago. At the same time Indonesia has changed dramatically. The challenge now is to envision a new health system that takes account of these changes. Envisioning the new system is a critical first step for development of a human resources policy which, in turn, will require more information about the stock of healthcare providers and increased capacity for human resource planning.

Background.

In 2001 Indonesia embarked on a rapid decentralization of government finances and functions (1). Within a year much of the responsibility for public services had been transferred to the districts, many of the central civil servants and service facilities were

transferred to the local government. In parallel, Indonesia also commenced the implementation of a new intergovernmental fiscal framework, the district share in government spending almost doubled, the balance between general grants and grants earmarked by the center for specific sectors and functions changed markedly in favor of general grants, the sectoral allocation of which was to be decided by local government.

This radical and rapid change in intergovernmental relations has, in turn, lead to many changes at the district level. However, because it happened so quickly, there is much that remains to be done. In some cases implementing regulations have still not been completed, in others there is a conflict, ambiguity and confusion between the various laws and regulations. As a result, more than eight years later, uncertainty still affects the efficiency of service delivery.

Like other government services, the health sector has also been affected by these changes. One of the areas in the health sector most affected is human resources. Prior to decentralization the central Ministry of Health had complete responsibility for the health sector, including human resources, and decided how resources were to be allocated in the districts. Districts were obliged to respond to demands from the central government for information about use of resources, health status, the delivery of services and human resources for health. Although there were inaccuracies in the data and delays in receipt at the center, it was possible for the central government, through their representatives in the provinces and districts, to build a picture of the situation at the district, provincial and national levels. With decentralization the role of the province was greatly reduced and the districts no longer feel obliged to respond to requests for information from the center, let alone the province. Consequently, one of the effects of decentralization is that the center has much less information about all aspects of the health system at all levels than it did before. This lack of information is occurring at a time when the need for it is particularly acute. There are clear indications that the health system and the health needs of the population are changing and that government needs to modify policies in response to these changes and shape a health system that can cope with the future. Despite this need the government has less information than before on which to base its decisions. This is particularly true for the human resources who will be responsible for delivering the services.

Although in principle the districts now have control of their health manpower the central government still controls all permanent civil servants (*Pegawai negeri sibil* – PNS, see Box 1) working at the district level – these staff are paid directly from the center and the center effectively controls hiring, firing and the conditions of employment of this category of staff. The center also controls hiring, firing and the conditions of employment of a category of contract staff known as PTT (*Pegawai Tidak Tetap* – see Box 2). In addition, there are many staff at the district level who are neither PNS or PTT and the center has little, if any, information about their qualifications, how many there are, where they work or the conditions of their employment. In addition, there is an increasing number of healthcare providers who do not work for the government at all and the central government has little information about them as well.

Thus, at a time when there are significant changes occurring in the health sector the government has decreasing information about its most valuable resource, the people who provide the health services, public or private. For example, even though there are indications that the private sector is increasing in size the government has little information on this important group at the district level. And this is occurring at a time when the there is great concern about the lack of attention to human resources in the health sector globally, especially that many governments do not have the most basic information about their most important resource - how many health professionals there, their age and sex, or how they are distributed (2). This information is vital to envisioning a health system that can respond to the health challenges of Indonesia.

The work reported here is part of an attempt to understand what is happening at the district level in the health sector starting at the district level with a basic enumeration of the human resources and the health facilities in which they work and deliver services. Our aim, in a sample of 15 districts in Java, is to: (i) enumerate the stock of health facilities (public and private) in the health sector in 2006; (ii) to enumerate the stock of human resources (public and private) in the health sector in 2006 trained to provide care and treatment for illness – in Indonesia this means doctors, nurses and midwives; and (iii) to estimate the funds (public and private) spent on health care in the course of 2006. The results will be reported in three separate papers. This paper reports on human resources for health.

Methods.

As much of the information we wished to obtain is not available at the center we collected it in the districts. This work concentrates on Java where 60% of the population live. Resources were sufficient to allow data to be collected in 15 districts. To ensure representation of the range of situations in Java, 5 districts were chosen in each of West Java Province, Central Java Province and East Java Province. Basic details of the 15 districts are shown in Table 1.

Data were collected by three teams, one for each province, in 2007. The provincial team leaders were from, and based in, the province, and had previous experience in collecting health data at the district level.

The goal was to enumerate all healthcare providers (doctors, nurses and midwives) in the district. The primary source of data on district health personnel was the district health office and the district hospital. There are two basic documents usually available at each district health office and district hospital – a list of all government employees in the sector by rank and seniority (*Daftar Nominatif*), and the list of all permanent civil servants in the district by sector (*Daftar Urut Kepangkatan*, also known as the *DUK*). All healthcare providers who do not work for the government but have a private practice in which healthcare are licensed by the district government and our list was supplemented from those sources as well. Whilst these lists were kept more or less up to date in the past, since decentralization many districts put much less effort into these tasks. Consequently there is considerable variation between districts (and provinces) in the

completeness of these lists today. In some districts where the government records were clearly incomplete we also consulted the membership lists from the professional associations for doctors, nurses and midwives – these lists potentially include members in both the public (because public sector doctors are members of the association and have private practice rights) and private sectors and are also in varying states of completeness. Regardless of the source of information, all names on the membership lists were checked against the public sector lists to minimize double counting. Thus, a consolidated list of doctors, nurses and midwives (see Table 2 for definitions) was produced for each district. For each provider we also recorded, where it was available, their employment status (civil servant, contract, volunteer, self employed – see Table 3 for a list of categories and definitions) and primary place of work (hospital, health center, private practice, clinic – see Table 4 for a list of categories and definitions). In West Java this information is essentially complete. In the other two provinces, East Java and Central Java, there were districts in which the information on each provider did not include employment status and/or primary place of work. The aggregate information on employment status and primary place of work for the districts in these provinces is based on information available in the annual district health sector report and discussions with senior administrators in the district health office.

Results.

The results provide a snapshot of the human resource situation in the health sector in 2006 for 15 districts across Java.

Density of healthcare providers.

The number of doctors, nurses and midwives for each district is shown in Table 5. There is an almost fourfold range in the total number of health providers across these 15 districts. As would be expected, there is a high correlation ($r = 0.85$) between population and total healthcare providers. On average the number of providers increases by 300 for every 500,000 increase in population. However, when the number of providers are expressed in terms of population (provider density, total number of providers per 1000 population) the provider density shows a negative correlation with district population ($r = -0.46$) – districts with larger populations tend to have lower provider density. Whilst this may be a reflection of some economies of scale there may be other issues here that our data cannot address (for example, the surface area and population density of the districts).

These provider density levels are low by international standards and vary widely between districts. For example, the World Health Organization (2) defines 2.5 healthcare providers (doctors, nurses and midwives) per 1000 population as the level below which there is a critical shortage of providers. None of the 15 districts comes close to reaching the WHO cut-off – in fact, 11 of the 15 districts have densities below 1.0. Whilst these levels are undoubtedly low, the definition of density does not take into account the high level of dual practice that exists in many countries, including Indonesia. In fact, most health providers practice twice, once at their position in the public sector and later in the day at their private practice. Taking this into account would undoubtedly raise the

'provider' density but still not to the cut-off level suggested by WHO. At the same time, this effect is likely to overwhelmed by the high rates of absenteeism from public health centers, the site of the largest concentrations of health staff at the sub-district level – an international survey showed Indonesia to have the highest rates of absenteeism for health staff (40%) across the countries surveyed (3).

Service status.

Details of the various groups of health providers in each district by their employment status (defined as in Table 2) are shown in Tables 6, 7, and 8 for West Java, Central Java and East Java, respectively. For those providers working in the public sector, these data are summarized in terms of the proportion in each type of employment status for Doctors in Table 9, Nurses in Table 10 and Midwives in Table 11. The important points to arise from these tables are that in 2006:

- For all three professional groups (doctors, nurses and midwives) approximately half are permanent civil servants or PNS (doctors 46%, nurses 51%, midwives 56%);
- Central government contracts (PTT) are of most importance for midwives (9 districts had more than one-third of their midwives employed on this basis) and of declining importance for doctors. Nurses were not included in this scheme.
- Local contracts are most important for nurses (41% across the 15 districts).
- The private sector as the primary source of employment is most important for doctors (37% across the 15 districts), in 4 districts the proportion of doctors in the private sector was greater than the proportion PNS. For midwives, the proportion is substantial - 6 districts had more than 10% of their midwives in private practice, in two of these districts approximately one-third were in private practice. For nurses the proportion is low (8%), most in the private sector working in private hospitals.

Primary place of work for those in the public sector.

(The database constructed for health staff in each province did not allow reliable differentiation on this variable in East Java. Consequently only West and Central Java are included here, a total of 10 districts.) Healthcare providers at the district level whose primary place of work is in the public sector work in a limited number of institutions. Doctors and nurses work in either the district hospital or a health center. Midwives work in the district hospital, a health centre or as a village midwife. The distribution across these public sector facilities is shown for doctors, nurses and midwives in Tables 12, 13 and 14, respectively. The main points to emerge from these tables are:

- Overall, two-thirds of doctors and nurses in the public sector are in the health center and one-third are in the district hospital.
- Overall, 54% of midwives were located at the village level, 41% were in the health center and 5% in the district hospital. The proportion at the health center is

higher than expected and does not conform to the original intention of the village midwife program. It is possible that these are recording errors but checking of the records with district staff did not change the picture. On this basis, four districts have less than 55% of their midwives recorded as located at the village level.

Discussion

The data presented here represent the stock and distribution of health personnel in 15 districts in 2006. In fact, since these data were collected, government has been following up on an earlier promise to convert those on contract (including PTT and local contracts) to permanent civil service status by the end of 2009 – the major beneficiaries will be nurses on local contract and midwives on PTT. In some districts this will mean as many as 500 new permanent civil servants in the health sector. Consequently, the proportion of PNS will rise substantially and that for contracts will be much lower. Overall, there will be little change in the total number of providers as those who convert to PNS were already on local contract or PTT.

Thus, PNS is still the most important employment category for all types of healthcare providers; contract employment (PTT and local contracts) is rapidly decreasing; most doctors and nurses are in the health center; and the proportion of midwives in the village is less than expected. Private practice as the primary source of employment is now quite important, especially for doctors, and increasingly so for midwives. Clearly, this distribution between employment categories and facilities is the outcome of various policies and actions taken in the last 30 years, policies which have their origins in decisions taken 50 years ago as the post-Independence health system was planned and implemented. In addition, there is considerable variation between districts on all these parameters reflecting earlier central and district government decisions as well as provider preferences.

There are four main points to make about these results. First, to explain the development of the human resource situation to this point; second, the emerging importance of the private sector, those not employed by the government; third, to assess the affect of decentralization; and fourth, to canvass where Indonesia goes from here.

First, the antecedents. In the late 1960s and early 1970s the government moved to set up a health system based on the health center at the sub-district level and a hospital at the district level (4). The main goal was to improve access to health services under the umbrella of primary health care as agreed at the WHO- and UNICEF-sponsored Alma Ata conference (5); it was agreed that to achieve this improved access health facilities needed to be distributed among the people and the facilities needed to be adequately staffed. These two types of health facilities, district hospitals and health centers, were to be staffed by doctors, nurses and midwives. Subsequent decisions lead to health sub-centers located in some villages staffed by midwives and/or nurses and, even later, to the creation of a village facility staffed by midwives. Once the basic structure of the health system was decided and under development with health centers and hospitals being built, staffing the facilities became the critical activity. To do that, starting in the mid-1970s,

the government introduced a period of obligatory service (as permanent civil servants or PNS, see Box 1) for all new medical and nursing graduates. A period of obligatory service in places decided by the government allowed facilities to be established and staffed in many areas previously without health facilities, including some areas that were quite remote. The result was a rapid expansion of public health facilities and the staff required to run them. However, by the early 1990s the government realized that for fiscal reasons it could not continue to hire all new medicine, nursing and midwifery graduates and introduced a contract scheme (PTT – see Box 2) for doctors and midwives (not nurses) that allowed them to meet their period of obligatory service (3 years on Java but shorter periods in more isolated areas) after which they could continue with specialist training or private practice. By the end of the 1990s the PTT system for doctors was under serious strain and it was finally ended in 2007, except for a small number of doctors serving for short periods (6 months) in remote areas. The PTT system for midwives continues with the intent of placing them in villages.

Second, the emerging private sector. Estimates for all categories of healthcare provider indicate a growing private sector (6;6;6;7)either working for private facilities (private hospitals, treatment clinics) or in their own private practice without an appointment with the government. These numbers are likely to be underestimates as the membership lists and associated information kept by the professional societies are usually not up-to-date. The flow of new graduates for each heathcare provider category has increased markedly in recent years as private training institutions have proliferated under a generally lax licensing approach. Now that PTT for doctors has effectively ended and after the current PNS hiring phase, it is likely that, for fiscal reasons alone, few doctors, nurses and midwives will find employment with the government. Consequently, many will move straight into private practice without any government position. So the proportion of private providers will certainly grow over the next decade and beyond if the current flow of new graduates continues. Governments ignore this trend at their peril as not only will these professional groups be politically active, they have great potential to skew the further development of the health system in ways that will put the poor at even further disadvantage then is currently the case.

Third, the effect of decentralization. Experience from various countries indicates that decentralization has important implications for human resources, including in the health sector (8). These vary from the deterioration of human resource databases, the need for new skills at all levels, confusion and conflicting goals for human resource management at different levels of the system, effects on training and staff mobility, to the need for local managers to have flexibility in their labor costs and the space to change the skills mix of their staff. All these effects are evident in Indonesia.

As is often the case when radical decentralizations occur, the central government moves to regain control. One of the ways in which this is happening in the health sector in Indonesia is for the central government to retain control of the human resources in the sector. Although the health staff were ‘transferred’ to the districts under decentralization, the reality is that the center retains control over salaries, conditions and hiring and firing. In an effort to create some potential flexibility in their hiring districts had started to place

greater reliance on local contract hiring even before decentralization. Now that avenue of flexibility has been closed by the center with their promise of conversion to PNS for those currently on contracts (either central or local) before the end of 2009. At the same time further contract hiring by the districts has been forbidden. Staff mobility between districts is less under decentralization than it was before. The responsibility for planning and implementation of in-service training is unclear.

In effect Indonesia is returning to the human resources situation of 20 years ago where the central government essentially controlled all public sector staff. Once again, district level governments do not control the hiring, firing and terms and conditions of their own staff. Further, because all staff is now permanent, all staff costs are essentially fixed. The corollary is that districts have had to cede the limited flexibility for human resources hiring (including capacity to change skills mix) they had created through the use of various forms of contract staff and are now saddled with permanent staff whose skills may or may not be appropriate to the local situation and whom they, in effect, cannot fire even for non-performance. Once again the central government has reduced pressure on district governments to allocate resources efficiently (6) by assuming even more control over salary costs. Overall, the control of the districts over their human resources has been further reduced even though the variation between districts in their human resource endowment is wide and flexibility is clearly needed if managers are to respond to the local situation and improve efficiency of resource use.

Fourth, what of the future? The Indonesian National Health System, as it evolved, had an implicit aim of distributing healthcare providers throughout the country. The key to achieving this distribution was the establishment of a network of publicly funded health care facilities in which the central institution was the public health center, a center that was also seen as consistent with implementation of the Health For All goals of the Alma Ata declaration (5). Facilities were established in a fixed ratio to the population. Facilities required a fixed complement of staff. Thus, estimating human resource requirements was a simple arithmetic exercise and was not related to local variations in workload or overall efficiency of resource use. Training institutions had to provide these staff. This simple, linear logic was the essence of the human resources policy of the government right through the Suharto era. A new category of staff (the midwife) was added, subtracted and then added again; new forms of employment were devised (the PTT scheme) and modified as new problems arose. But essentially implementation of the policy involved a series of calculations to estimate the number of staff required to run the facilities that had been, or were to be, built. And for a period in the middle, at the height of the Suharto era, it worked. Facilities and staff were basically distributed as planned, services were delivered, and health status improved. Whether this was due to the health facilities and staff or to the economic development, improving basic education and road infrastructure, or the poverty reduction that occurred at the same time is still an open question (6;9;10). But after this brief heyday in the second half of the 1980s the system began to slowly, but surely, unravel. And the main reasons for this were problems with human resources. Service providers create and deliver the service and are usually seen as synonymous with service quality by the consumer (11). Quality of training had always been low and there was little improvement as the pressure to train and graduate more providers to staff the

growing number of facilities increased. A critical underlying problem was the inability of the government to maintain the relatively good distribution of staff it achieved in the latter part of the 1980s. Contributing to this initial success was that many of the health staff trained at the end of the 1970s and the first part of the 1980s were highly motivated and dedicated people who genuinely wanted to bring healthcare to their less fortunate compatriots. But there is also no doubt that many had no real interest in their fellow nationals beyond making a comfortable living. The best way to do that was to establish a successful private practice and the best location was in urban areas. In Indonesia, as in most other countries, the resting state for the distribution of healthcare providers is to be located in urban areas. Whilst this applies more to doctors than to the other professions, they also have many of the same motivations and also tend to gravitate to urban areas (12). Further, as the student nurses and midwives are increasingly drawn from families of the urban middle class the preferences for urban living increase.

The issue for any government now, as it was 50 years ago when the current system was devised, is how to improve the quality of health services and ensure access to them. Under the assumption that the task is to distribute facilities and providers to the people, to a large extent the government has now lost the most potent tool that it had in the 1970s and 1980s to improve distribution – coercion of health care providers to serve the government where the government wanted them to. Further, Indonesia is now a more urbanized country with a much higher level of income as well as much lower, though persistent, levels of poverty; education levels have increased and road infrastructure has also improved. Even if the poverty, education and infrastructure situations are still far from ideal, they are much better than they were 50, or even 30, years ago. The epidemiological transition, together with the demographic changes that have taken place, mean that the problems faced by the health system have changed dramatically in favor of non-communicable diseases. The challenge now is not to continue to devise new ways to continue to implement the old health system. The challenge now is to develop a vision for a new health system that takes these contextual changes into account as it addresses the changed health situation. In envisioning the new health system the government and community will need to take account of the difficulty that the government now has in maintaining the distribution of healthcare providers that characterized the Suharto era as well as recognize that managing the whole system requires more complex management skills and includes taking into account that private providers are an alternate source of care (13). The situation is further complicated by the fact that the government has inadequate information about the stock of healthcare providers and limited capacity for human resource planning.

But the first step is a new vision, something that the current government has been unable to do. When the new vision is there, then the questions of how to ensure that there are healthcare providers and facilities of quality in the best places to ensure reasonable access and an improved health situation for Indonesia can be addressed.

Conclusions

The Indonesian health system has its origins in decisions taken 50 years ago as the post-Independence health system was planned and implementation commenced. The main goal was to improve access to health services under the umbrella of primary health care. This was done by establishing and staffing a network of primary care facilities based around a health center in each sub-district and a hospital in each district. Starting in the mid-1970s these facilities were staffed through a period of obligatory government service for all new graduates in medicine, nursing and midwifery. By the mid-1990s this was no longer possible for fiscal reasons and a contract system of up to 5 years, depending on the location of service, was implemented. This system ended in 2007 with provider density still low by international standards. In effect the government has now lost the most potent tool to improve distribution of providers – obligation to serve the government where the government wanted – and has been unable to replace it.

In parallel, the private sector is expanding because the government uptake is much lower and the majority of graduates now enter the private sector directly. The government has little information about the private sector which is likely to increase significantly in size and importance in the coming decade.

Under decentralization districts were to have greater control over human resources at the district level and would, thereby, have an incentive to make more efficient use of them. In fact, the central government retained control over most human resources. District governments increased their use of local contract staff as a way of gaining flexibility in their wages bill and skill mix. However, central government has recently moved to regain control over essentially all staff by converting PTT and contract staff to permanent civil servants. In effect, Indonesia has returned to the centralized control over human resources of 20 years ago.

At the same time, Indonesia has changed dramatically since the existing health system was designed. It is now more urban, has higher incomes and less poverty, better education and more roads. The health situation has also changed – even though communicable diseases remain important, non-communicable diseases are now dominant. The challenge now is to envision a new health system that takes into account the changing context as it addresses the new health situation. Envisioning the new system is a critical first step for development of a human resources policy which, in turn, will require more information about the stock of healthcare providers and increased capacity for human resource planning.

Competing interests

The authors declare no competing interests.

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Box 1 - Permanent Civil Servants (Pegawai Negeri Sibil - PNS) (12;14).

Persons appointed as PNS are permanent civil servants. Under a Presidential Decree in 1974 all new medical graduates were required to enter government service as permanent civil servants (PNS). There was a period of obligatory service at a health facility, usually a health center, nominated by the government. Fulfillment of this obligation was a condition of obtaining a license to practice. The length of mandatory service, normally five years, was reduced to three years in areas outside Java and two years in remote areas such as Irian Jaya. In addition to the usual civil service benefits health center doctors received free housing. Following the period of compulsory service (*masa bakti*) doctors

could then apply to enter specialist training or be assigned to another location or stay where they were. While serving at the health center the doctor was permitted to engage in private practice outside the government working hours. Between 1974 and 1992 a total of 8327 doctors were recruited in this way and assigned to health centers; a smaller number were assigned to hospitals. Nurses and, later, midwives were also recruited as permanent civil servants.

By the late 1980s it was becoming clear to the government that for budgetary reasons it would not be able to continue to take all doctors and nurses as permanent civil servants with the attendant commitments to healthcare, pensions and other benefits. In 1992 the government introduced a zero growth policy for the whole civil service. Recruitment of new PNS doctors was limited to those required to replace doctors lost through retirement, death and migration. Within the health sector the response was to develop a category of contract workers (PTT – Pegawai Tidak Tetap) for doctors and, subsequently, midwives, whose period of obligatory service was handled through a non-renewable three-year appointment to serve in remote areas – see Box 2. Nurses were not included in this new category. New recruits to the permanent civil service were limited in number.

This policy of limited new recruits to the permanent civil service continued through 2005 when the central government decreed that all central and local contract appointments to that time who met certain age and length of service criteria would be converted to permanent civil servants. The criteria were subsequently relaxed so that all persons 19-46 years of age who had served at least one year on a central or local contract would be eligible for appointment as a permanent civil servant before the end of 2009.

Box 2. Central contracts (*Pegawai Tidak Tetap* - PTT) (12;14)

In 1992, as part of the overall government policy of limiting civil service growth, newly graduated doctors were no longer hired as permanent civil servants (PNS). However, there was still a requirement for obligatory service and this was now fulfilled through employment on a three-year contract as non-permanent employees (*pegawai tidak tetap* – PTT). Employment as a PTT doctor was a condition of obtaining a license to practice. The salary and allowances received by PTT doctors were far more attractive than those of permanent civil servants; however, PTT doctors did not receive healthcare, housing, pension and other benefits received by PNS doctors. Doctors were assigned mostly to health centers. The rhetoric surrounding the scheme emphasized the intention to improve the distribution of doctors to rural and remote areas. The PTT scheme faced administrative issues from the start, especially the inability of the government to place all new graduates at the start of each year. As a result, many young doctors had to wait until their placements became available and frequently worked as unlicensed doctors in urban private practices. The compulsory nature of the service was questioned; salaries were considered low, especially for graduates from private medical schools where the cost of training was much higher; some considered restrictions on choice of location infringed human rights; many of the regulations could be avoided at a price; and, despite the scheme, concentration of doctors on Java and in urban areas continued.

With each new set of issues and criticisms the government modified the scheme, sometimes by increasing pay, other times by softening the conditions of service. Before the scheme for doctors was eventually abandoned in 2007 the conditions has been so modified that new doctors faced few limitations that could not be negotiated away. Today what remains of the scheme for doctors is a voluntary six-month contract to serve in remote areas with substantially higher salary and location allowances than PNS doctors. For all non-remote areas the central PTT scheme for doctors has finished.

However, the PTT scheme still operates throughout Indonesia for midwives for whom the scheme also started operation in 1994. It was used to drive the village midwife scheme. Midwives were hired on a non-permanent basis for three years with a maximum extension of six years. It was assumed that midwives who had completed their contract would be hired as PNS or take up private practice or continue their education. As with the doctors some aspects of the scheme were found to be untenable. The main problem was the limitation on extensions which was subsequently lifted. At the same time, there are concerns in some districts that the many midwives are no longer in the villages but have moved to urban areas where more lucrative private practices can be established while retaining a nominal village location. This concern comes at a time when the central government is engaged in a major expansion of the midwife scheme in two ways. First, as with other health staff, PTT midwives who were employed before 2005 have already been offered the chance to become permanent public servants. Second, the central government in 2008 has asked district health offices to send names of midwives to be appointed as new PTT midwives. To date there has been no physical field-based census of midwives, PNS or PTT, to determine if they are in fact in the village.

Tables

Table 1. Estimated 2006 population of 15 districts included in this study

Province	District	Population	No. sub-districts
West Java	Ciamis	1458680	36
	Cirebon	2134656	37
	Garut	2274973	41
	Subang	1402134	22
	Sukabumi	2240901	45
Central Java	Brebes	1727708	17
	Cilacap	1717273	24
	Jepara	1078037	14
	Pemalang	1341422	14
	Rembang	591786	14
East Java	Jombang	1203716	21
	Ngawi	857449	19
	Pamekasan	782917	13
	Sampang	801541	14
	Trenggalek	682328	14

Table 2. Definitions of health service providers.

Provider	Description
Doctor (Dokter)	Graduate of an Indonesian medical school licensed by the government.
Nurse (Perawat)	Graduate of: (i) a Sekolah Perawat Kesehatan (SPK), students enter at the end of junior high school and the SPK training is regarded as equivalent to senior high school; OR (ii) an Akademi Perawatan for which students enter at the end of senior high school; OR (iii) Fakultas Ilmu Keperawatan, a university level course at the first degree level, there is a small number of second degree level graduates as well. All these institutions must be licensed by the government.
Midwife (Bidan)	Graduate of: (i) Sekolah Bidan (SB), students enter at the end of junior high school and this training is regarded as equivalent to senior high school; OR (ii) Program Pendidikan Bidan (PPB) – entrants to this 1 year program have an SPK nursing qualification; OR (iii) Akademi Kebidanan (Akbid) for which students enter at the end of senior high school. Originally midwives were trained as SB until this program was closed in 1984. After a 5 year period of no training of midwives the government started training again in 1989 through the PPB as village midwives; the PPB was closed in 1998 and was replaced by the Akbid program.

Table 3. Categories of employment status of health service providers (doctors, nurses, midwives).

Status	**Category**	**Employer**	
Permanent civil servant	PNS	Central government	See Box 1.
Central contract	PTT	Central government or, in the case of a small number of doctors, local government..	See Box 2.
Local contract	Kontrak/honorer	Local government, health facility using funds from the local government.	Doctor, nurse or midwife who works for a health facility on a local government contract. The level of pay and terms are usually less favorable than those for a PTT. Paid, hired and fired by the District Government from their own budget. Terms and conditions of their employment are not well documented, but there seems to be variation between facilities and districts.
Volunteer	Sukwan	Health facility using locally generate funds.	Doctor, nurse or midwife who works as a 'volunteer' at the health facility under a short term informal 'contract'. They receive some payment directly from the facility and usually hope that their work as a volunteer will eventually lead to a longer term contract and/or PNS.
Monthly contract	Bidan harian lepas	Health facility using funds provided by the province	Village midwife employed on a monthly basis. This category of provider is only used in West Java Province since 2005.
Private practice	Praktek swasta	Self	Doctor, nurse of midwife who work primarily on their own account as private practitioners and do not have a primary appointment with, or receive a salary from, the government. This category does <u>not</u> include doctors and midwives whose primary appointment is with the government but who also have a private practice after office hours.

Table 4. Definitions of health facilities. (Health facility is defined as a physical structure which varies from a large complex of buildings to a single room in a house from which health services are offered by a doctor, nurse or midwife).

Health facility	**Description**	**Public/ Private**
Public hospital (Rumah Sakit Umum Daerah (RSUD))	Public hospital located at the district level	Public
Private hospital (Rumah Sakit Umum Swasta (RSUS))	Private hospital located at the district level, national and provincial government enterprises, police, defense forces.	Private
Private hospital for women and children (Rumah Sakit Ibu dan Anak (RSIA))	Private hospital for women and children located in the district.	Private
Rumah Sakit Bersalin (RSB)	Private women's hospital located in the district.	Private
Private maternity clinic (Rumah Bersalin (RB))	Private maternity clinics with more than 2 beds.	Private
Health Center (Pusat Kesehatan Masyarakat)	Public health center located in the district – in general they are located at the sud-district level.	Public
Auxiliary health center (Pustu)	Public sub-health center located in the – in general they are located at the sub-district level, usually in a village.	Public
Village midwife (Bidan di desa (BDD)/Pondok Bersalin Desa (Polindes))	BDD is a village midwife who receives a government salary and also may charge for the services she provides and retain the fee herself. Although the village midwife theoretically lives in the village (desa) there are reports indicating that in many villages she lives elsewhere, maybe in a nearby urban area. The services provided by the BDD may be offered in a room in her house or in a structure in that is the property of, and was built by, the village government (polindes). In the polindes the services are provided by the village midwife who charges for the services and retains the fees.	Private
Treatment clinic (Balai pengobatan (BP))	Treatment clinic. Before the advent of the health center there were private and public treatment clinics. As the health center was developed the public treatment clinics were incorporated in the health center with the result that only the private balai pengobatan remained. Although they have been ignored by the government and donors they remain a significant source of treatment, especially in urban areas. They are licensed by the local government and must have a doctor as the supervisor. In practice, most of the doctors named as the supervisor seldom visit and nurses, and some midwives, provide most of the health care unsupervised.	Private
Doctor private practice (Dokter praktek swasta (DPS) murni)	Doctor whose primary professional activity is private practice and who does not receive a salary from the government.	Private
Nurse private practice (Perawat praktek swasta (PPS) murni)	Nurse whose primary professional activity is private practice and who does not receive a salary from the government.	Private
Midwife private practice (Bidan praktek swasta (BPS) murni)	Midwife whose primary professional activity is private practice and who does not receive a salary from the government.	Private

Table 5. Doctors, nurses and midwives (total and density per 1000 population) in 15 districts by province and district. 2006.

Province	District		Doctor	Nurse	Midwife	Total
West Java	Ciamis	District total	96	835	472	1403
		Density (per 1000 population)	0.07	0.57	0.32	0.96
	Cirebon	District total	295	800	723	1818
		Density (per 1000 population)	0.14	0.37	0.34	0.85
	Garut	District total	145	984	468	1597
		Density (per 1000 population)	0.06	0.43	0.21	0.70
	Subang	District total	173	751	442	1366
		Density (per 1000 population)	0.12	0.54	0.32	0.97
	Sukabumi	District total	206	588	406	1200
		Density (per 1000 population)	0.09	0.26	0.18	0.54
Central Java	Brebes	District total	181	599	548	1328
		Density (per 1000 population)	0.10	0.35	0.32	0.77
	Cilacap	District total	183	873	585	1641
		Density (per 1000 population)	0.11	0.51	0.34	0.96
	Jepara	District total	130	552	383	1065
		Density (per 1000 population)	0.12	0.51	0.36	0.99
	Pemnalang	District total	130	519	313	962
		Density (per 1000 population)	0.10	0.39	0.23	0.72
	Rembang	District total	92	329	425	846
		Density (per 1000 population)	0.16	0.56	0.72	1.43
East Java	Jombang	District total	301	577	408	1286
		Density (per 1000 population)	0.25	0.48	0.34	1.07
	Ngawi	District total	132	446	203	781
		Density (per 1000 population)	0.15	0.52	0.24	0.91
	Pamekasan	District total	87	299	253	639
		Density (per 1000 population)	0.11	0.38	0.32	0.82
	Sampang	District total	53	291	171	515
		Density (per 1000 population)	0.07	0.36	0.21	0.64
	Trenggalek	District total	73	358	216	647
		Density (per 1000 population)	0.11	0.52	0.32	0.95

Table 6. Distribution (frequency) of doctors, nurses and midwives by employment status and district in 5 districts of West Java, 2006.

Province	District	Provider	PNS	PTT	Local contract	Volunteer/ Daily contract	Private Sector	Total
West Java	Ciamis	Doctor	50	3	0	5	38	96
		Nurse	430	0	161	210	34	835
		Bidan	320	107	5	7	33	472
		Total	800	110	166	222	105	1403
	Cirebon	Doctor	62	39	6	0	188	295
		Nurse	322	0	335	72	71	800
		Bidan	357	106	3	30	227	723
		Total	741	145	344	102	486	1818
	Garut	Doctor	59	22	11	0	53	145
		Nurse	573	0	295	116	0	984
		Bidan	277	110	17	46	18	468
		Total	909	132	323	162	71	1597
	Subang	Doctor	53	16	8	1	95	173
		Nurse	289	0	274	168	20	751
		Bidan	233	146	10	10	43	442
		Total	575	162	292	179	158	1366
	Sukabumi	Doctor	52	43	11	1	99	206
		Nurse	218	0	275	75	20	588
		Bidan	246	55	2	66	37	406
		Total	516	98	288	142	156	1200

Table 7. Distribution (frequency) of doctors, nurses and midwives by employment status and district in 5 districts of Central Java, 2006.

Province	District	Provider	PNS	PTT	Local contract	Volunteer/ Daily contract	Private Sector	Total
Central Java	Brebes	Doctor	134	3	0	0	44	181
		Nurse	238	0	223	0	138	599
		Bidan	206	306	1	0	35	548
		Total	578	309	224	0	217	1328
	Cilacap	Doctor	88	23	5	0	67	183
		Nurse	453	4	261	0	155	873
		Bidan	389	107	89	0	0	585
		Total	930	134	355	0	222	1641
	Jepara	Doctor	84	28	15	0	3	130
		Nurse	393	0	144	0	15	552
		Bidan	241	142	0	0	0	383
		Total	718	170	159	0	18	1065
	Pemalang	Doctor	61	16	15	0	38	130
		Nurse	237	0	191	0	91	519
		Bidan	171	127	15	0	0	313
		Total	469	143	221	0	129	962
	Rembang	Doctor	67	12	2	0	11	92
		Nurse	275	0	54	0	0	329
		Bidan	217	191	8	0	9	425
		Total	559	203	64	0	20	846

Table 8. Distribution (frequency) of doctors, nurses and midwives by employment status and district in 5 districts of East Java, 2006.

Province	District	Provider	PNS	PTT	Local contract	Volunteer/ Daily contract	Private Sector	Total
East Java	Jombang	Doctor	122	17	9	0	153	301
		Nurse	185	0	154	63	175	577
		Bidan	203	106	22	0	77	408
		Total	510	123	185	63	405	1286
	Ngawi	Doctor	64	0	14	18	36	132
		Nurse	316	0	130	0	0	446
		Bidan	169	0	8	4	22	203
		Total	549	0	152	22	58	781
	Pamekasan	Doctor	56	12	2	0	17	87
		Nurse	193	0	106	0	0	299
		Bidan	109	40	17	0	87	253
		Total	358	52	125	0	104	639
	Sampang	Doctor	28	7	13	0	5	53
		Nurse	129	0	101	57	4	291
		Bidan	110	48	7	1	5	171
		Total	267	55	121	58	14	515
	Trenggalek	Doctor	59	11	3	0	0	73
		Nurse	230	0	128	0	0	358
		Bidan	140	71	5	0	0	216
		Total	429	82	136	0	0	647

Table 9. Distribution (proportion) of doctors by employment status and district in 15 districts, 2006.

		Permanent civil servant	Contract	Private practice
West Java	Ciamis	0.52	0.08	0.40
	Cirebon	0.21	0.15	0.64
	Garut	0.41	0.22	0.37
	Subang	0.31	0.14	0.55
	Sukabumi	0.25	0.27	0.48
Central Java	Brebes	0.74	0.02	0.24
	Cilacap	0.48	0.15	0.37
	Jepara	0.65	0.33	0.02
	Pemalang	0.47	0.24	0.29
	Rembang	0.73	0.15	0.12
East Java	Jombang	0.41	0.09	0.51
	Ngawi	0.48	0.24	0.27
	Pamekasan	0.64	0.16	0.20
	Sampang	0.53	0.38	0.09
	Trenggalek	0.81	0.19	0.00
15 districts		0.46	0.17	0.37

Table 10. Distribution (proportion) of nurses by employment status and district in 15 districts, 2006.

Province	District	Permanent civil servant	Contract	Private practice
West Java	Ciamis	0.51	0.44	0.04
	Cirebon	0.40	0.51	0.09
	Garut	0.58	0.42	0.00
	Subang	0.38	0.59	0.03
	Sukabumi	0.37	0.60	0.03
Central Java	Brebes	0.40	0.37	0.23
	Cilacap	0.52	0.30	0.18
	Jepara	0.71	0.26	0.03
	Pemalang	0.46	0.37	0.18
	Rembang	0.84	0.16	0.00
East Java	Jombang	0.32	0.38	0.30
	Ngawi	0.71	0.29	0.00
	Pamekasan	0.65	0.35	0.00
	Sampang	0.44	0.54	0.01
	Trenggalek	0.64	0.36	0.00
15 districts		0.51	0.41	0.08

Table 11. Distribution (proportion) of midwives by employment status and district in 15 districts, 2006.

Province	District	Permanent civil servant	Contract	Private practice
West Java	Ciamis	0.68	0.25	0.07
	Cirebon	0.49	0.19	0.31
	Garut	0.59	0.37	0.04
	Subang	0.53	0.38	0.10
	Sukabumi	0.61	0.30	0.09
Central Java	Brebes	0.38	0.56	0.06
	Cilacap	0.66	0.34	0.00
	Jepara	0.63	0.37	0.00
	Pemalang	0.55	0.45	0.00
	Rembang	0.51	0.47	0.02
East Java	Jombang	0.50	0.31	0.19
	Ngawi	0.83	0.06	0.11
	Pamekasan	0.43	0.23	0.34
	Sampang	0.64	0.33	0.03
	Trenggalek	0.65	0.35	0.00
15 districts		0.56	0.34	0.10

Table 12. Distribution (proportion) of doctors working for the government by their primary place of work and district in 10 districts, 2006.

Province	District	Hospital	Health center
West Java	Ciamis	0.37	0.63
	Cirebon	0.21	0.79
	Garut	0.29	0.71
	Subang	0.38	0.62
	Sikabumi	0.34	0.66
Central Java	Brebes	0.33	0.67
	Cilacap	0.50	0.50
	Jepara	0.32	0.68
	Pemalang	0.30	0.70
	Rembang	0.35	0.65
	10 districts	0.33	0.67

Table 13. Distribution (proportion) of nurses working for the government by their primary place of work and district in 10 districts, 2006.

Province	District	Hospital	Health center
West Java	Ciamis	0.20	0.80
	Cirebon	0.20	0.80
	Garut	0.40	0.60
	Subang	0.30	0.70
	Sikabumi	0.36	0.64
Central Java	Brebes	0.27	0.73
	Cilacap	0.32	0.68
	Jepara	0.20	0.80
	Pemalang	0.51	0.49
	Rembang	0.63	0.37
	10 districts	0.32	0.68

Table 14. Distribution (proportion) of midwives working for the government by their primary place of work and district, 2006.

Province	District	Hospital	Health center	Village midwife
West Java	Ciamis	0.03	0.44	0.52
	Cirebon	0.05	0.20	0.75
	Garut	0.04	0.28	0.69
	Subang	0.07	0.30	0.64
	Sikabumi	0.05	0.26	0.69
Central Java	Brebes	0.03	0.34	0.62
	Cilacap	0.06	0.51	0.43
	Jepara	0.03	0.57	0.40
	Pemalang	0.05	0.41	0.54
	Rembang	0.06	0.94	0.00
	10 districts	0.05	0.41	0.54