INTERNATIONAL JOURNAL OF HEALTH PLANNING AND MANAGEMENT
Int J Health Plann Mgmt 2007; **22**: 183–203.
Published online 8 June 2007 in Wiley InterScience
(www.interscience.wiley.com) **DOI**: 10.1002/hpm.890

A sustainability assessment of a health equity fund initiative in Cambodia

Bart Jacobs[1], Neil Price[2]* and Sam Oeun Sam[1]
[1]*Swiss Red Cross, Phnom Penh, Cambodia*
[2]*Centre for Development Studies, Swansea University, Swansea, UK*

SUMMARY

All but one of the health equity funds (HEFs) currently operating in Cambodia, introduced to address the adverse effects of low user fee exemption rates, rely heavily on external funding and have high administrative overheads. This article reports on a study of one type of HEF, based in Kirivong Operational Health District (KOD) and operated through local pagoda structures, which demonstrates minimal reliance on external funding and low administrative overheads. We utilize an adapted sustainability assessment framework to assess the ability of pagoda structures to enable financial access for the poorest to public sector health services. We further analyse the strengths and limitations of the pagoda-managed equity fund initiative, with a view to assessing not only its sustainability but its potential for replication in other settings.

Our study shows that, against key sustainability indicators (health service utilization and health outcomes; management capacity and financial viability; community mobilization and government support), the pagoda-managed equity fund initiative scores well. However, it is evident that some external financial support is needed to allow the HEFs to function effectively. We conclude with recommendations for replicating the initiative, which include working innovatively with indigenous grassroots organizations to enhance community HEF ownership and to keep administrative overheads low. Copyright © 2007 John Wiley & Sons, Ltd.

KEY WORDS: sustainability; health equity funds; Cambodia; faith-based organizations

INTRODUCTION

The introduction of user fees for pubic sector health services has been shown to lead to decreases in service utilization (Creese, 1991; Mbugua *et al*., 1995; Mwabu *et al*., 1995; Waddington and Enyimayew, 1989, 1990), and to create what Whitehead *et al*. (2001) term a medical poverty trap. As well as contributing to long-term impoverishment, other adverse consequences of the medical poverty trap include irrational use of drugs leading *inter alia* to drug resistance and untreated morbidity.

* Correspondence to: Dr N. Price, Director, Centre for Development Studies, School of the Environment and Society, University of Wales Swansea, Singleton Park, Swansea, SA2 8PP, UK.
E-mail: n.l.price@swansea.ac.uk

Somewhat surprisingly, the introduction of user fees at secondary and tertiary health facilities in Cambodia has resulted in increased service utilization (Soeters and Griffith, 2003; Akashi *et al*., 2004; Barber *et al*., 2004; Hardeman *et al*., 2004; Jacobs and Price, 2004). This increase appears to be largely due to the abolition of informal charges (Barber *et al*., 2004), and because of improved quality of care (notably better interpersonal skills of health staff) as a result of increases in staff remuneration using funds generated from the user fees (Akashi *et al*., 2004). A recent study at a rural district hospital, however, indicated that increased service utilization was concentrated among people of higher socioeconomic status (Jacobs and Price, 2004), and that exemptions from user fees for the poor were the exception rather than the rule, as reported for other Cambodian public sector hospitals (Akashi *et al*., 2004; Barber *et al*., 2004).

To address the adverse effects of low exemption rates on access to care for the poor, while facilitating the continuation and consolidation of the positive effects of user fees on service delivery and utilization, an international NGO successfully piloted a health equity fund (HEF) at a rural Cambodian district hospital (Hardeman *et al*., 2004). Through HEFs a third party reimburses health care providers for services to clients/patients deemed eligible to benefit from user fee exemption. Currently there are HEFs operational at 26 hospitals or operational health districts in Cambodia, of which all but one rely on external funding, and are implemented by non-governmental organizations that incur high administrative overhead costs of up to 50% of budget (Crossland and Conway, 2002). Such a non-integrated approach with high overheads undermines the financial sustainability of HEF initiatives in Cambodia (Jacobs and Price, 2006).

Only one type of HEF in Cambodia—based in KOD—operates with minimal reliance on external funding and with low administrative overheads (see Jacobs and Price, 2006). A study of this HEF, managed by Buddhist pagoda volunteers, analysed the initial year of operations (May 2003–April 2004) and focused on the extent to which the HEFs were able to support high levels of community participation (Jacobs and Price, 2006). Here we analyse the sustainability of the initiative over a 32-month period of operations, using a modified version of a framework developed by Sarriot *et al*. (2004a). In addition, the study seeks to provide an evidence base for improving the current operations of the HEF, and to assess its potential replicability.

Although our findings are specific to locations where Theravada Buddhism is the dominant religion (Cambodia, Thailand, Laos, Myanmar, Sri Lanka) and where user fees may impede access to public sector health services for the poorest, a similar approach to managing HEFs through other faith-based organizations (FBOs) might be equally relevant for other regions, as has been advocated by DeHaven *et al*. (2004) to improve access to health care for the >40 million people without health insurance in the USA.

Background

KOD consists of four administrative districts with 31 communes and 290 villages, and a population of 201 870 (1998 census). Public sector health services are provided from 20 health centres and an 80-bed referral hospital. There are 91 pagodas

DOI: 10.1002/hpm

(Buddhist temples) and five mosques (for the Cham Muslim population). The Operational Health District has been ''contracted'' since 1999, whereby an international non-governmental organization (INGO) manages KOD on behalf of the Ministry of Health. Contracting has shown to considerably increase service coverage and to improve equity in access to services (Schwartz and Bushan, 2004; Loevinsohn and Harding, 2005). In Cambodia contracting has contributed greatly to improved quality of care and service availability.

HEFs, established in KOD in May 2003, are run by pagoda-associated volunteers, who fund-raise for the pagodas and their inhabitants (Buddhist monks), and manage these funds on behalf of the pagoda (Collins, 1998). Links between the pagodas (and mosques) and the health sector were originally established when Health Centre Management Committees (HCMC) were created in 2001. Membership of the HCMC includes two volunteers from each pagoda (or mosque) in the health centre catchment area, plus one representative from each commune council. In addition to co-managing the health centres, HCMC members were involved in health education and nutrition-related activities at village level, along with the respective village chief. The village chief and the nearest resident HCMC member made up the Village Health Support Group (VHSG). These structures were supplemented by regular meetings at operational district level between the Operational Management Team, Deputy Governors in-charge for Health and the District Chief Monks who together constituted the Advisory Board to KOD. The resulting approach to community participation at KOD is displayed in Figure 1.

Following the recommendations of the Advisory Board, one pagoda committee (known as the in-charge pagoda) was appointed in April 2003 for each health centre, to manage the respective HEF, while the other pagodas and mosques collected funds and handed these over to the in-charge pagoda. Eligible households were pre-identified according to locally formulated criteria displayed in Box 1 (Jacobs and Price, 2006), through a process of community-based targeting (see Conning and Kevane, 2002) led by members of the VHSG. Full lists of eligible households—by village—were assembled by the HCMC members, who after checking for completeness forwarded them to the respective pagoda chief monk for endorsement

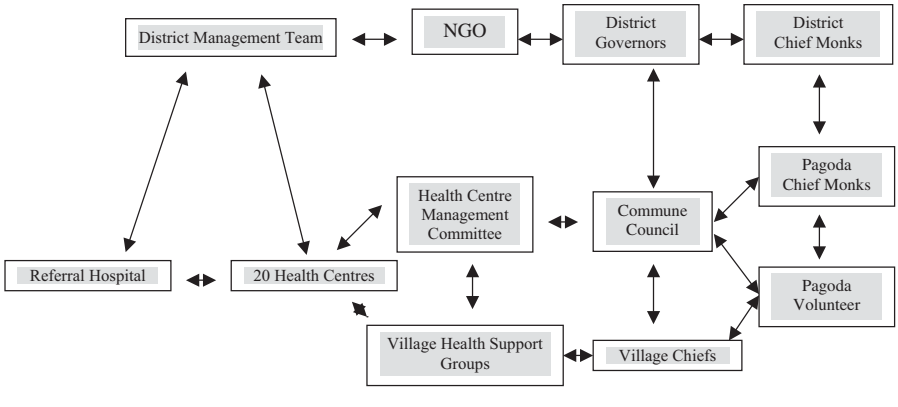

Figure 1. Approach to community participation: main actors

DOI: 10.1002/hpm

(the monks' moral authority serves to reduce the potential for inclusion error). After completion of the pre-identification process, the lists were photocopied and disseminated to the health facilities and local authorities. HEF operations started following the provision of seed funding, equivalent to US$0.12 per EFB, as a grant by an external donor to the in-charge pagodas. Services at health centres (consultations, deliveries and contraceptives) and the referral hospital were reimbursed for 32 220 pre-identified EFB.

After 1 year of activities, an evaluation was conducted which indicated that the likelihood of an EFB obtaining free care at a public sector health facility within KOD

Box 1: Criteria for eligibility to benefit from the equity funds:

Comply with all three major criteria:

- Poor composition of house (roof and wall from thatch/palm/bark/aluminium sheets);
- owning less than 0.5 ha of land;
- having a daily household income of R4000 or less.[1]

and

Comply with at least one additional criterion:

- No 'luxury goods' assets (such as TV, motorcycle);
- no farm animals;
- having at least seven economically inactive household members.

[1]R4000 = US$1.

was 76%, and that a considerable proportion of those EFBs interviewed had delayed care seeking, or did not seek care, because of the costs of transport from their home to the health facility (Jacobs and Price, 2006). The results of this evaluation formed the basis for a revised approach to HEFs in Kirivong. A local NGO—Buddhism for Health (BfH)—was created to operate an HEF (with limited external financial and technical support) for the reimbursement of hospital service fees and the costs of transport to and from the facility, while the pagoda-managed equity funds scaled back their role to community fundraising and to reimbursing health centres for services provided to EFB. This approach commenced in January 2005, 20 months after the original HEFs were launched in KOD (Table 1).

The evaluation had indicated that the inclusion error (i.e. the proportion of the non-target group benefiting form the intervention and also known as 'leakage') was minimal (Jacobs and Price, 2006). The exclusion error (the proportion of the intended target group not benefiting from the intervention, sometimes referred to as 'coverage') was not known, but concerns were expressed in the evaluation that a number of the poor may have been missed during the initial identification process. This is most likely to have occurred among the landless who rely on selling their

DOI: 10.1002/hpm

Table 1. Main differences between the documented periods

	Initial phase	Second phase
Period	May 2003–December 2004	January–December 2005
Proportion of population pre-identified	32 220/209 130 (15%)	47 249/217 001 (22%)
Eligibility card	No	Yes
Means of poverty assessment	Pre-identification	Pre-identification
Pagoda-managed HEF pays	Health centre services and hospitalization	Health centre services
LNGO pays	Not applicable	Hospital fees and transportation to and from hospital
External support	Seed funds, technical support, materials	External funding for LNGO and hospital fees, technical support

LNGO, local non-governmental organization.

labour, and are consequently highly mobile. The evaluation indicated that the landless constituted 34% of the beneficiaries (Jacobs and Price, 2006). The identification process was therefore repeated prior to commencing the new approach, and showed that 47 249 people (22% of the population) were found to be eligible, compared to the initial figure of 32 220 (15%). Although the accuracy of the second pre-identification round was not evaluated, it is possible that the inclusion error increased. However, more accurate mechanisms for targeting are costly (Willis and Leighton, 1995; Devereux, 2002) and community-based targeting represented a cost-effective compromise.

All EFB households were provided with an entitlement card. The new approach coincided with an increase in user fees for outpatient consultations at health centres: children under the age of five were required to pay R500 (US$0.13) compared with free care previously, and those aged 5 years or more paid R1500 (US$0.38) versus R1000 previously.

METHODS

The period of this study is May 2003–December 2005, divided in two distinct phases: the initial 20-month phase May 2003–December 2004, and the period January–December 2005, when the reformulated HEFs were in operation.

To explore the sustainability of the pagoda-managed equity funds (PMEFs) we use a conceptual framework (see Table 2) adopted and adapted from Sarriot *et al*.'s (2004a) Sustainability Assessment Framework. The framework has three dimensions—health, organization and context—each with two components and associated elements or indicators. We apply this framework to assess the effectiveness of the pagoda structures and associated volunteers in enabling financial access for the poorest to public sector health services in a setting with low levels of exemptions

DOI: 10.1002/hpm

Table 2. Analytical framework

Dimension	Components	Elements and indicator(s)
1. Health	1.1. Sustainable health outcomes	Population health: – Deliveries assisted by qualified public staff per 1000 population
	1.2. Conditions required for sustainable health outcomes	Equitable access: – *Per capita* outpatient consultations for poorest and better-off – Per 1000 persons hospitalizations for poorest and better-off
2. Organization	2.1. Organizational capacity	Selection of leaders and decision-making; planning and management of budgets; development and management of projects; relationships with local, national and international institutes; role of community, especially vulnerable people
	2.2. Organizational viability	Financial self-reliance Interdependency Role of outside agent within the Operational Health District Leadership
3. Context	3.1. Community capacity	Role of outside agent in relation to HEFs
	3.2. Policy context	National policies concerning HEFs

Adapted from Sarriot *et al*. (2004a).

DOI: 10.1002/hpm

from fees for such services. We further analyse the strengths and limitations of the PMEFs, with a view to assessing not only their sustainability but also their potential for replication in other settings.

We adopt here the definition of sustainability as '... a contribution to the development of conditions, enabling individuals, communities and local organizations to express their potential, improve local functionality, develop mutual relationships of support and accountability and decrease dependency on insecure resources (financial, human, technical, informational), in order for local stakeholders to negotiate their respective roles in the pursuit of health and development, beyond a project intervention' (Sarriot *et al*., 2004a). This definition is based on the understanding that it is ultimately the coordinated social interactions and efforts between individuals, communities and local organizations, based on their awareness of health and development, that leads to long-lasting improvements in health conditions.

The elements and indicators against which we analysed sustainability are set out below.

Dimension 1: Health

Component 1.1: Sustainable health outcomes. The element *population health* is measured using the indicator of number of assisted deliveries per 1000 population. In the context of Cambodia's high maternal mortality ratio of 450 per 100 000 life births (Chatterjee, 2005), deliveries assisted by qualified public sector health staff represent an important preventive service. Deliveries are a proxy for uptake of preventive services since these are paid for and are consequently documented, whereas data for other free preventive services such as vaccination or antenatal care are not stratified according to HEF status.

Component 1.2: Conditions for sustainable health outcomes. The assessment element is *equitable access* to curative services, measured by the annual *per capita* outpatient consultations and hospitalizations per 1000 population.

Dimension 2: Organization

Component 2.1: Organizational capacity. LaFond *et al*. (2002) provide a comprehensive framework for the analysis of organizational capacity. However, as pagodas are institutions that have evolved within a specific historical and cultural context, and have withstood dramatic societal changes and upheaval (Brown, 1999), we have chosen not to assess their organizational capacity along criteria formulated for contemporary Western organizations. Instead we adopt Chino and DeBruyn's (2006) argument regarding the need for indigenous models for capacity building and capacity assessment for indigenous communities and apply these to the pagodas and respective committees, namely that 'although the current constructs of capacity building are positive steps, most fail to recognize that Western definitions of success and the expected benefits to the community differ greatly from tribal expectations and definitions'. We therefore used selected but context-relevant indicators from the

DOI: 10.1002/hpm

capacity analysis toolkit for FBOs by the CORE Initiative (2005): selection of leaders and decision-making, planning and management of budgets, development and management of projects, relationships with local, national and international institutes and the role of the community, especially vulnerable people.

Component 2.2: Organizational viability. Sarriot *et al*. (2004a) recommend moving assessment of organizational viability beyond its financial dimension. However, in our conceptual framework, the financial autonomy of the PMEFs is given central importance in view of the need to ensure financial access for the pre-identified EFBs to public sector health services. Further, as Godfrey *et al*. (2002) argue, excessive reliance on external donor funding may divert accountability away from beneficiaries and increase the possibility of financial irregularity, thereby potentially undermining the initiative. We therefore consider financial viability a key element for the organizational viability component. Interdependency is an additional element in our analysis, as it is deemed essential for the effective performance of the PMEFs and is dependent upon the synchronized activities of each of the actors involved. Furthermore, and to ensure consistency with our definition of sustainability (adopted from Sarriot *et al*., 2004a) we also examine the technical assistance provided by the contractor (international NGO) to the Operational Health District.

Dimension 3: Context

Component 3.1: Community capacity. Gibbon *et al*. (2002) define community capacity as '. . .the community groups' abilities to define, assess, analyse and act on health (or any other) concerns of importance to their members'. Of the nine domains for community capacity identified by Gibbon *et al*. (2002)[2] we have selected two: leadership and the role of outside agents. Leadership is chosen because it constitutes the main element that influences the performance of pagoda committees (Pellini, 2004). Outside agents such as INGOs represent an important initial link between the implementing agency (such as the local community-based organization) and the funding source, a link which should gradually decline in significance as the INGO delegates influence (and ultimately ownership) to the implementing organization (Godfrey *et al*., 2002; Gibbon *et al*., 2002).

Component 3.2: Policy context. The pagoda-managed equity fund approach is analysed in the context of the national policy on HEFs (Ministry of Health, 2005).

Sources of data

The data necessary to measure the three dimensions above were collected and analysed from a number of sources.

[2]The nine domains are participation, leadership, organisational structures, problem assessment, resource mobilisation, 'asking why', links with others, role of outside agents, and programme management (Gibbon *et al*., 2002).

DOI: 10.1002/hpm

Health service data (for measuring dimension 1, components 1.1 and 1.2) were derived from the routine health information system which differentiates payable services provided to EFB from those provided to non-beneficiaries (NB). Data on the expenditure of and income generation by the pagoda-managed equity funds (for measuring dimension 2, component 2.2) were obtained from the HCMC chiefs during monthly meetings organized at Operational Health District level.

Information related to operational aspects of the HEFs (for measuring dimension 2, components 2.1 and 2.2; and dimension 3, component 1) was obtained from a number of sources, including the respective reports and minutes of a specially convened 2-day HEF workshop within KOD (attended by four District Chief Monks, a District Secretary Chief Monk, a District Disciplinary Chief Monk, four District Deputy Governors in-charge for Health, the Chief Imam, Provincial Health Director and District Management Team members), from the discussions at a strategic management analysis meeting (attended by 18 Health Centre Management Committee Chiefs, three District Chief Monks, three Deputy Governors in-charge for Health and a District Management Team member), and from a focus group discussion with 20 Health Centre Management Committee Chiefs.

The Cambodian Ministry of Health's only policy document related to HEFs (Ministry of Health, 2005) was carefully reviewed to capture specific references to PMEFs, as a means of measuring dimension 3, component 3.2.

RESULTS

Health and health services

Assisted deliveries per 1000 persons. During the 20 months of the initial phase there were a total of 2719 deliveries assisted by qualified staff, which gives an average of 1631 assisted deliveries per year of the initial phase ($2719 \times 12/20$). Assisted deliveries to EFB represented an average of 74 of these deliveries. The average annual number of assisted deliveries to NB during the initial phase was thus 1557 (1631 minus 74). The number of assisted deliveries for EFB during the initial phase was 2.3/1000 population per year; while the equivalent figure for NB was 8.8 (Table 3). The respective figures for the second phase were 4.4/1000 (209/47 249) and 9.8/1000 (1662/169 752).

Outpatient consultations and hospitalizations. During the initial phase, the annual number of consultations *per capita* for NB was 0.61 (108 299/176 910) and for EFB was 0.21 (6724/32 220). The respective figures for the second phase were 0.47 (79 263/169 752) and 0.65 (30 749/47 249). During the initial phase, EFB made up 6% of all outpatient consultations and 28% during the second phase.

The annual number of hospitalizations per 1000 population was 40.3 (7127/176 910) for NB during the initial phase and 18.4 (3118/169 752) during the second phase. The respective figures for EFB were 9.4/1000 and 32.5/1000. During the

DOI: 10.1002/hpm

Table 3. Annual rates of assisted deliveries, outpatient consultations and hospitalizations over the two phases

Variable	Initial phase (*n*)	Second phase (*n*)
Annual assisted deliveries per 1000 persons		
Non-beneficiaries (NB)	8.8 (176 910)	9.8 (169 712)
Equity fund beneficiaries (EFB)	2.3 (32 220)	4.4 (47 249)
Annual outpatient consultations per capita		
NB	0.61 (176 910)	0.47 (169 712)
EFB	0.21 (32 220)	0.65 (47 249)
Annual number of hospitalization per 1000 population		
NB	40.3 (176 910)	18.4 (169 712)
Equity fund beneficiaries	9.4 (32 220)	32.5 (47 249)

Note: The difference between proportions of assisted deliveries for NB between phases 1 and 2 is significant at the 0.001 level. For all the other variables the difference between proportions in the two phases is significant at the 0.0005 level, all by *t*-test.

initial phase, EFB made up 7% of the total annual number of hospitalizations versus 33% during the second phase (see Table 3).

Organization

Organizational capacity. The pagoda committee looks after the material[3] (and spiritual) needs of the monks, maintains the physical structures of the pagoda and is responsible for managing voluntary financial and other material donations to the pagoda. This committee, of five to seven members, is elected on a 3-year basis by the community members of the respective parish. Pagoda committee membership is drawn from the pagoda chief monk, the *achaar* (ex-monks who returned to lay life and adhere to eight Theravada precepts), and the most respected *chas tom* (elder people adhering to five precepts). The pagoda committee keeps transparent accounts of all the donations, details of which are open to public scrutiny. Financial donations are stored in a box or cabinet in the pagoda chief monk's room, along with the equity fund collection box.

Planning for the needs of the pagoda occurs by what Collins (1998) terms a 'plenary parish committee': a meeting attended by the pagoda chief monk, all the monks and nuns, the *achaar* and selected *chas tom* of the parish. However, when a project is identified it is the pagoda committee that oversees mobilization of the resources and implementation of the plan. Separately, *achaar* are individually or collectively responsible for fundraising for the pagoda. The strategies, and associated responsibilities, for collecting money for the pagoda-managed equity funds, as developed by the participants at the aforementioned workshops and group discussion, are displayed in Box 2. However, in practice the collection box and the annual *Bun Pka* flowering ceremonies (which are purposely designed as

[3]Among the 227 precepts for Theravada Buddhist monks is one that states they should not possess material belongings.

DOI: 10.1002/hpm

fundraising ceremonies, mainly to finance construction activities), remain the dominant means of fundraising for the HEFs.

Box 2: Fundraising for the HEFs:

- The pagoda committee to agree the proportion of money collected during ceremonies like *Pchum Ben*, Khmer New Year and *Kathen*, to be allocated to the equity fund;
- the pagoda committee to agree the proportion of money collected during any village functions and ceremonies to be allocated to the equity fund;
- district chief monks and administrative authorities to request money from national politicians;
- administrative authorities and pagodas to arrange special flowering ceremony (*Bun Pka*) to fundraise for the equity fund;
- the commune chief to ask R1000[4] of all people requiring official documents such as birth certificates;
- the commune chief to ask R1000 from village chiefs during monthly meetings;
- pagoda volunteers to collect money by Equity Fund Collection Box during the weekly pagoda day;
- the monks, *achaar* and village chiefs to arrange monthly collections at the villages;
- the monks and *achaar* to bring the Equity Fund Collection Box to each ceremony in the villages;
- the village chief to collect R200 monthly from all families for the equity fund.

Pagoda administrative structures reflect the line management system of the Cambodian government administration; that is there is a district chief monk, provincial chief monk and a national chief monk. At all levels of the pagoda structure (including district and sub-district levels), the poorest are effectively excluded from participating in the management and administration of the pagoda because of opportunity costs: time devoted to pagoda issues is voluntary and occurs at the expense of ability to work, limiting the ability of those with low income generating capabilities to fully participate. In the case of the first phase PMEFs, the poor were passive recipients of the respective services. From the second phase onwards, in an attempt to redress this shortcoming, Village Equity Fund representatives were identified from the respective EFB. Although the intention was for Village Equity Fund representatives to participate in Village Development Committee meetings, their roles remained mainly limited to dissemination of information related to the HEF to other EFB, and to facilitate two-way communication between EFB and HCMC members.

Apart from their endorsement of the eligibility lists received from the parish, monks devote little time to the HEFs. Most of the activities associated with the HEF

[4]R1000 = US$0.25.

DOI: 10.1002/hpm

are undertaken by the HCMC members, who participate at meetings, ensure the presence of the collection boxes at prayers and ceremonies and organize the annual *Bun Pka* flowering ceremonies. In all, 2–3 h are devoted to HEF activities each week by each HCMC member.

Organizational viability. The seed funding grant provided by the bilateral donor to the in-charge pagodas for initiating activities of the HEFs was R14 913 500 (US$3738). During the initial phase the pagodas and mosques collected R22 764 500 (US$5691) in a 20-month period and the number of NB, who represent the main source of the funds raised, was 176 910. The amount collected per NB was thus R77 per year. During the second phase, R16 922 350 (US$4231) was collected from 169 752 NB, amounting to R100 per NB per year. Total expenditure by the HEFs during the initial phase was R14 044 710 (US$3511) for hospitalizations (45%) and health centre services (55%). During the second phase expenditure for the health centres amounted to R42 392 800 (US$10 598) while the local NGO spent R79 388 000 (US$19 847) on user fees and transport for hospitalized patients. Administrative overhead costs for the NGO operating the HEF at the referral hospital were R17 748 000 (US$4437) or 18% of the respective budget.

With inclusion of the seed funding grant of ≈US$0.12 per EFB, the pagoda-managed equity funds had a net positive financial balance at the end of the initial phase of R14 527 490 (US$3632). If the seed money is discounted, 9 of the 20 PMEFs would have been in deficit to the effect of R2 540 700 (US$635) in total. These nine PMEFs included the four that had only one pagoda in the respective health centre's catchment area. During the second phase, however, 11 equity funds had a total negative financial balance of R13 757 970 (US$3440), including the seed funding. If the seed funding is discounted in phase 2, this would have raised the total deficit to R25 470 450 (US$6368), and none of the equity funds would have been in surplus.

Interdependency of the pagoda-managed equity funds takes various forms. First, one pagoda committee is in charge of accounting and administration of the equity fund of a single health centre, while the other pagodas (and mosques) collect money and hand it over to the in-charge pagoda. Second, for optimal functioning of the funds there needs to be a balance between the religious authorities, administrative authorities and health centre staff (Figure 2). The various tasks performed by the main actors are summarized in Table 4.

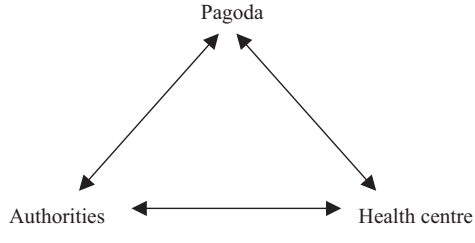

Figure 2. Interdependence for pagoda-managed HEFs

DOI: 10.1002/hpm

Participants at the workshops and group discussion expressed the view that the most important people for the success of the pagoda-managed equity funds were the pagoda chief monk, the pagoda chief *achaar* and the commune chief. The commune chief was considered able to influence the chief monk and stimulate community financial donations to the equity funds. Monks who did not preside over the pagoda were not considered to have any significant influence. This was also the case for the *achaar*. The ability to generate voluntary financial donations did not relate to the pagoda's popularity with the community, but depended on the degree of support provided by the commune chief to the initiative. Of the equity funds that collected more money than they spent, members said they had explicit support by the commune and village chiefs.

Health centre chiefs were recommended by workshop participants to interact more intensely and proactively with the administrative and religious authorities if the pagoda-managed equity fund was to be successful. Their participation in commune council meetings and pagoda committee meetings allowed them to encourage members of those forums to prominently display the HEF collection box and to provide information to the community regarding the operation of the equity funds.

When contracting commenced operations at KOD in 1999, only two health centres were operational and the hospital had only its tuberculosis ward functioning. About 130 people were registered as staff members although few were working. Within 2 years all facilities (20 health centres and an 80-bed hospital) were fully functional; monthly outreach services routinely provided immunization, contraceptive and antenatal care services; the technical skills of service providers had improved; and supervision and monitoring were conducted routinely in collaboration with the health district management team. A salary supplement of US$20–40 was provided to service providers, linked to their presence at facilities, opening hours and (for health centres) regularity and punctuality of outreach services. To ensure availability of sufficient staff members, the contractor also hired qualified personnel such as nurses and midwives residing within KOD but not working for the public health system (27% of 180 staff members) to fill vacant positions. For the first 4 years of contracting, the international NGO relied on four expatriate and nine national staff, which reduced thereafter to one and four, respectively.

Context

Community capacity. Leadership within the pagoda-managed equity funds has been noted as being highly effective (Jacobs and Price, 2006), according to the measurement scale developed by Rifkin *et al*. (1988). Pagoda-associated volunteers raised concerns about the poor and generated voluntary financial donations for their welfare; and there appeared to be little nepotism or self-interest among the leadership. The importance for the financial viability of the equity funds of the chief monks and chief *achaar* was confirmed in the focus groups. At those pagodas where neither of these two key people were active members of the HCMC, support for the equity fund initiative was low, and the collection boxes would often not be placed in prominent positions, or some of the money which was fundraised would be used for purposes other than the HEF.

DOI: 10.1002/hpm

Table 4. Roles of main actors in operations of the pagoda-managed equity funds

Actor	Roles for sustaining equity funds
Pagodas	*Role in health sector* • Representatives make up HCMC • Active collaboration during outreach activities, including health education *Role for equity funds* • Identification of the poor • Collection of money for the fund • Free accounting and administration of the fund
Administration	*Role in health sector* • Commune Council representative in health centre management committee • Village chiefs maintain register on uptake of preventive services by infants and pregnant women during outreach • Village chiefs assemble target groups during outreach *Role for equity funds* • Deputy Governors coordinate activities of Village Chiefs and Commune Council in identification process of poor • Commune chiefs motivate religious authorities for money collection, when necessary • Some commune chiefs raise funds; active participation in flowering ceremony, some village chief raise HEF tax on irregular basis
Health centres	*Role in health sector* • Front line delivery of basic—mainly preventive—essential services *Role for equity funds* • Population's willingness to give money for equity funds correlates with quality of services, including opening hours, transparency, accountability • HCMC members' willingness to collect money for equity funds correlates with quality of services and attitude of staff members • Administrative and religious authorities' willingness to promote equity depends upon interaction of health centre and OD management with them

DOI: 10.1002/hpm

Other suggestions to improve the leadership for the initiative included increasing the effectiveness of the meetings at operational district level with pagoda representatives. It was felt that these meetings should not be limited to the district chief monks but also include the district disciplinary chief monks and district secretary chief monks. The inclusion of these significant players would also ensure better dissemination of information related to HEFs within pagodas. It was also suggested that operational district and NGO staff members should attend the quarterly meetings at administrative district level of pagoda chief monks and use these as advocacy platforms for the HEFs. The equity funds were thought to benefit from more political support at all levels.

The role of the outside agent (the contracting NGO) with respect to the HEFs was relatively limited throughout the process. Community participation at KOD only commenced after all facilities were functional (Jacobs and Price, 2003). During the initial phase the outside agent attracted funds from a bilateral donor as a grant for seed funding, provided collection boxes to all pagodas and commune offices and developed the accounting and reporting system. Since it was anticipated that the Ministry of Health would finance equity funds in the contracting districts from the year 2005 onwards through local non-governmental organizations, a decision was made to create BfH in KOD, who were mandated to safeguard the uniqueness of the approach to managing equity funds in KOD. BfH's role also included attracting additional funds for other health-related activities that can be concurrently implemented at low cost in the operational district's 290 villages, by using pagoda social networks and government structures. The title Buddhism for Health was adopted to reflect its association with the existing 91 pagodas. To ensure that BfH could realize its objectives, the Board of Directors was comprised of religious, administrative and health authorities, that is the respective chief monks and deputy governors from the four administrative districts, along with the two deputy directors of the operational district. The appointed director was the District Secretary Chief Monk from Kirivong Administrative District. BfH managed the hospital-based equity fund from January 2005 onwards with external funding attracted by the contracting NGO. The contracting NGO provided a number of inputs and assistance. It equipped BfH's office and provided secretarial support. Technical assistance focused on proposal and report writing, and on training in management issues. The contracting NGO also organized and financed the workshops related to the HEFs, and provided funding for the VHSG assistance during outreach sessions at village level (US$5200 per year), for transport costs for HCMC meetings at the health centres (US$2100 per year) and for the HCMC Chiefs' meetings at operational district level (US$1200). There were no budget lines from the Ministry of Health that allowed for reimbursing transport costs or other expenses incurred by volunteers for their participation in health-related activities.

Policy context. The only policy document concerning HEFs that has been produced by the Ministry of Health (2005) is the *Implementation and Monitoring Framework for the Equity Funds in Cambodia: Operational Manual*. Despite the pagoda managed equity funds only dating from May 2003, the Ministry of Health Framework refers specifically to their being a worthy 'policy information initiative'

DOI: 10.1002/hpm

(p 25) to inform the Ministry of Health and development partners on health financing instruments. Pagoda-managed equity funds are further considered 'a model to learn from and to enquire if it is transferable to other areas' (p 36). On 29th November 2005, a Secretary of State for Health wrote to the Supreme Patriarchs of the Buddhist Mohanikay order (about 90% of Buddhist clergy) and the Thommayut order (the remaining 10% of clergy), and to the Minster of Cult and Religion, with a request to order all pagoda chief monks to collect money for the health centres or hospitals to enable financial access for the poor to the respective services. This initiative from the MoH indicates increasing government support for the pagoda-based HEFs.

DISCUSSION

When the pagoda-managed equity funds were solely funded with money collected from the community (during the initial phase) potential beneficiaries were still disadvantaged in comparison with the NB for outpatient consultations (0.21 *per annum per capita* vs. 0.61 p.a.p.c., respectively) and hospitalizations (9.4 per 1000 population *per annum* vs. 40.3 per 1000 population *per annum* respectively). The reasons identified for these differences included poor dissemination of information regarding eligibility for free care following identification, reported lack of funds for transport to access free care and an estimated probability of 76% to receive free care from providers (Jacobs and Price, 2006). This situation was considerably improved during the second phase, when a local NGO was created to operate an equity fund at the hospital with external funds that also reimbursed transport costs to and from the facility for pre-identified beneficiaries. In addition, the introduction of entitlement cards to identified EFB households, and the identification of village equity fund representatives (to ensure dissemination of information) contributed to the success of phase 2. Outpatient consultations for EFB became 0.65 *per annum per capita*, while annual hospitalizations per 1000 population rose to 32.5.

Contracting has been shown to increase health service coverage (Schwartz and Bushan, 2004; Loevinsohn and Harding, 2005). Inequity is likely to reduce as service coverage increases (Victora *et al*., 2005). Our study has shown that there was a near doubling in assisted deliveries among EFB during the HEF second phase (4.4/1000 population per year compared to 2.3/1000 in the first phase). This increase was much greater than that observed among NB, from 8.8 deliveries per 1000 population per year to 9.8. Loevinsohn and Harding (2005) have shown that the largest increases in service delivery and utilization as a result of contracting in Cambodia have been among those services that are more amenable to behaviour change (immunization and antenatal care services), and far less pronounced for services, such as institutional deliveries, which require considerable behaviour change. This suggests that assisted deliveries for EFB increased as a direct result of the equity funds, whereas NB benefited from contracting.

Despite these positive improvements in access to and uptake of curative services (consultations and hospitalizations) by EFB, utilization of preventive services—as measured by qualified assistance during delivery—remained lower than for NB. Victora *et al*. (2005) analysed Demographic and Health Survey data on the uptake of

DOI: 10.1002/hpm

preventive services in Cambodia and found considerable inequities. This suggests the need to redirect the attention of HEFs away from curative services to include delivery of preventive services, monitoring of which would require the development of specific indicators with data ideally derived from the routine health information system to contain costs.

The World Health Organization (2006) recommends, in assessing the number of births attended by skilled public health personnel, that the denominator should be the total number of live births during the specified period. However, several factors constrain the use of this denominator: systemic faults in the Cambodian vital registration system, the (in)accuracy of the recording of births in the local health information system and deliveries in the private sector or in other health districts may be overlooked. Using the crude birth rate is also unsatisfactory: experience at KOD indicated that forecasting births by multiplying census data with the crude birth rate failed to correlate with the number of actual births at local level. Whilst our denominator (per 1000 population) likely suffers some level of inaccuracy, it is the most robust for the available data, as it reflects trends over time and indicates considerable differences between the poor and the better-off, in line with findings by Victora *et al*. (2005).

Pagodas and their associated committees have the capacity to manage HEFs in a way that builds on existing Theravada Buddhist principles and practices. Financial accounting is transparent and planning is participatory. The poorest, however, remain passive recipients of HEF-related activities, thus undermining HEF effectiveness. Their participation is likely to be constrained by the opportunity costs of contributing to health-related activities, including attending meetings. Participation has been shown to enhance the community mobilization of human, financial and other material (including in-kind) resources for health services, to improve the targeting of services according to need, to promote positive health behaviour change, as well as enhancing decision-making and empowerment (Woelk, 1992; Parry and Wright, 2003; South *et al*., 2004).

The pagoda-managed equity funds were financially viable during the initial phase, when health service utilization by the EFB was considerably lower than that of the NB. During the second phase, when the pagoda-managed equity funds paid only for health centre services, all the HEFs suffered financial loss, despite an increase in the annual *per capita* amount of money collected from NB from R77 to R100. This inability to match collection with expenditure was most likely caused by the considerable increase in the number of EFBs (from 32 220 to 47 249), a concurrent increase in user fees for outpatient consultations, and the threefold increase in annual *per capita* outpatient consultations by EFB (from 0.21 to 0.61). As such, annual requirements to reimburse health centre services used by EFB increased from US$1930 during the initial phase to US$10 598 during the second, clearly overstretching the fundraising capacity of the equity funds. However, apart from displaying collection boxes during religious events, there had been little effort to utilize other means to fundraise for the HEFs. No share of the money routinely collected by the pagodas was allocated to the equity funds, and fundraising for the equity funds continued to be undertaken quite separately, indicating that the HEF initiative has not yet been fully integrated into the pagoda system.

DOI: 10.1002/hpm

Fundraising from the local population has been and will continue to be hampered by a local preference for tangible development outputs. Rusten *et al*. (2004) report, in relation to commune projects in the context of decentralization in Cambodia, that ''[m]ost of the time villagers perceive development activities as something involving physical structures . . . As a result, many of the priority needs identified for the communes do not include less tangible development activities. . .''. Many pagodas have a list of names painted on a wall clearly stating the amount of money they donated for the construction or refurbishment of the building. Such a practice is not currently evident in relation to donations to the equity funds. One of the recommendations of our study is the provision of donation certificates, along with the installation in health centres of billboards that clearly display the names of HEF donors.

The data regarding expenditure and utilization indicate that support for the operations of the pagoda-managed equity funds is likely to require external funding. Such support could take the form of supplementing on a monthly basis the money collected by the pagodas, a strategy which is currently pursued by the international NGO contracted to manage KOD. Additional support is most needed for those equity funds consisting of a single pagoda. These are located in the poorest areas, where a high proportion (up to 50%) of the population is considered eligible, but where fundraising capacity is limited. However, it is unlikely that such an approach will appeal to international development assistance donors whose mandates require funds to be channelled through intermediaries, which in turn will increase transaction costs. As Chowdhury (2004) notes, donor involvement in grassroots development initiatives may stifle community initiative and participation, as 'tenders advertised by donors specify that financial and working capacity are key to their operations and it is normally only the larger NGOs that fulfil these criteria'. As argued elsewhere (Jacobs and Price, 2006), the role of outside agent should be limited to facilitator rather than implementer.

The level and nature of interdependency for an optimally functioning pagoda-managed HEF is considerable, and specifically requires a prominent role for the commune authorities. This contrasts with findings reported by Sarriot *et al*. (2004b) on a study of NGO project sustainability that 73% of interviewees (with extensive experience of working with or for health NGOs) disagreed with the statement that '[I]nterventions not supported by government structures are not sustainable'. However, it should be noted that the interviewees were associated with US NGOs, which receive the bulk of their funding from the United States Agency for International Development (USAID), which promotes what has been termed an anti-statist agenda (Portes, 1997), the formal implementation of which includes down-scaling state-supported social and health programmes, in favour of the private (including not-for-profit) sector. In addition to the commune authorities, the chief monk and chief *achaar* are pivotal to the success of the pagoda-managed equity funds. However, interaction between health centre staff and these key persons is often lacking, and strategies need to be developed to stimulate such interaction.

Closely related to interdependency is the issue of leadership. Careful attention must be paid to the composition of the community participation structures for health care (such as the health centre management committee), to ensure that the chief *achaar* and/or chief monk is included as a member, if support for the HEF initiative is to be achieved and sustained. The importance of selecting the appropriate

DOI: 10.1002/hpm

community representatives for successful participation has been discussed elsewhere (Jacobs and Price, 2003), but our study indicates that support for the equity fund initiative may not be fully realized if senior *achaar* or monks are not selected as committee members.

Cambodian Ministry of Health policymakers have shown considerable interest in the pagoda-managed equity fund initiative, as indicated by references in the only national Cambodian policy document concerning equity funds (Ministry of Health, 2005). In particular, the document cites the importance of the HEF as a model from which to learn. We see enormous potential for the initiative to be replicated elsewhere, in Cambodia and the South East Asian region, especially as a means to increase the degree of community participation in health, but also to ensure access to health services for the poorest as it offers a more sustainable approach to managing equity funds than those that are solely NGO-operated and rely completely on external funds. This is not to deny the importance of external support, but such assistance should be carefully directed toward technical support activities which facilitate the functioning of community participation structures and grassroots organizations, and optimize the interactions between commune authorities, religious authorities and health staff. The Ministry therefore needs to develop mechanisms for reimbursing the costs incurred by those community members who constitute the community participation structures. Financial support may also be required to ensure integration of the poorest into the decision-making processes of the equity fund operations, by reimbursing the opportunity costs of their participation. It is also unlikely that a pagoda-based HEF initiative such as that documented here could be realized without a well functioning public health system. The support of development assistance agencies (NGOs and international donors) through contracting arrangements or forms of technical and financial support is clearly important.

Rather than simply providing funds to the HEFs to reimburse health services provided to the poorest, alternative financing mechanisms need to be explored that support HEF ownership, and empowerment of communities to care for the poorest. One such approach could be based on matching funds, whereby external funds top up the amount of money collected through local fundraising. Fundraising from local elites should also be considered, as happens in Bangladesh (Ahmed *et al*., 2006). To lower costs, to allow for economies of scale and to move towards more sustainable HEFs, international donors should consider contracting NGOs to facilitate the creation of equity funds, with contracts stipulating that such NGOs should refrain from implementation *per se*, and focus on the provision of technical assistance for the establishment and management of equity funds, specifically activities which facilitate the functioning of community participation structures and grassroots organizations and optimize the interaction between communities, local government authorities and public sector health institutions.

ACKNOWLEDGEMENTS

Financial support for the equity fund initiative has been provided by the Cambodia/ Canada Health and Nutrition Initiative, Enfants&Développement, the Swiss Red

DOI: 10.1002/hpm

Cross and HealthNet International. The usual disclaimer applies: the opinions expressed herein are those of the authors and do not necessarily reflect the view of the aforementioned or of the Government of Cambodia. However, the authors acknowledge the permission grated by the Government of Cambodia (Ministry of Health) to publish this study. We are also grateful to Neil Thomas of the Department of City and Regional Planning at Cardiff University for his advice and assistance with calculating statistical significance in Table 3.

REFERENCES

Ahmed SM, Petzold M, Nahar K, Tomson G. 2006. Targeted interventions for the ultra poor in Bangladesh: does it make any difference in health seeking behaviour? *Soc Sci Med* **63**: 2899–2991.

Akashi H, Yamada T, Eng H, Koum K, Sugimoto T. 2004. User fees at a public hospital in Cambodia: effects on hospital performance and provider attitudes. *Soc Sci Med* **58**: 553–564.

Barber S, Bonnet F, Bekedam H. 2004. Formalizing under-the-table payments to control out-of-pocket hospital expenditures in Cambodia. *Health Policy Plann* **19**: 199–208.

Brown E. 1999. The meaning of community in Cambodia: French literature review. In *The Meaning of community in Cambodia. Literature reviews: French, English and Khmer languages*, Hyvernat E, Brouwer H, Leakhena N (eds). Working Group on Social organisation in Cambodia: Phnom Penh.

Chatterjee P. 2005. Cambodia tackles high maternal mortality. *Lancet* **366**: 281–282.

Chino M, DeBruyn L. 2006. Building true capacity: indigenous models for indigenous communities. *Am J Public Health* **96**: 596–599.

Chowdhury M. 2004. Community participation in health care. *Bull World Health Organ* **82**: 881.

Collins W. 1998. *Grassroots Civil Society in Cambodia*. Centre for Advanced Study: Phnom Penh.

Conning J, Kevane M. 2002. Community-based targeting mechanisms for social safety nets: a critical review. *World Dev* **30**: 375–394.

CORE Initiative. 2005. *CBO/FBO Capacity Analysis: A Tool for Assessing and Building Capacities for High Quality Responses to HIV/AIDS*. International HIV Alliance: Brighton.

Creese AL. 1991. User charges for health care: a review of recent experiences. *Health Policy Plann* **6**: 309–319.

Crossland A, Conway T. 2002. *Review of Mechanisms to Improve Equity in Access to Health Care, Cambodia*. DFID Health Systems Resource Centre: London.

DeHaven MJ, Hunter IB, Wilder L, Walton JW, Berry J. 2004. Health programs in faith-based organizations: are they effective? *Am J Public Health* **94**: 1030–1036.

Devereux S. 2002. Social protection for the poor: lessons from recent international experience. Institute of Development Studies, Sussex (IDS Working paper 142).

Gibbon M, Labonte R, Laverack G. 2002. Evaluating community capacity. *Health Soc Care Community* **10**: 485–491.

Godfrey M, Chan S, Kato T, *et al*. 2002. Technical assistance and capacity development in an aid-dependent economy: the experience of Cambodia. *World Dev* **30**: 355–373.

Hardeman W, Van Damme W, Van Pelt M, Ir P, Heng K, Meessen B. 2004. Access to health care for all? User fees plus a health equity fund in Sotnikum, Cambodia. *Health Policy Plann* **19**: 22–32.

Jacobs B, Price N. 2003. Community participation in externally funded health projects: lessons from Cambodia. *Health Policy Plann* **18**: 399–410.

DOI: 10.1002/hpm

Jacobs B, Price N. 2004. The impact of the introduction of user fees at a district hospital in Cambodia. *Health Policy Plann* **19**: 310–321.
Jacobs B, Price N. 2006. Improving access for the poorest to public health services: insights from Kirivong Operational Health District in Cambodia. *Health Policy Plann* **21**: 27–39.
LaFond AK, Brown L, Macintyre K. 2002. Mapping capacity in the health sector: a conceptual framework. *Int J Health Plann Manage* **17**: 3–22.
Loevinsohn B, Harding A. 2005. Buying results? Contracting for health service delivery in developing countries. *Lancet* **366**: 676–681.
Mbugua JK, Bloom GH, Segall MM. 1995. Impact of user charges on vulnerable groups: the case of Kibwezi in rural Kenya. *Soc Sci Med* **41**: 829–835.
Ministry of Health, Cambodia. 2005. *Implementation and Monitoring Framework for the Equity Funds in Cambodia. Operational Manual*. Ministry of Health: Phnom Penh.
Mwabu G, Mwanzia J, Liambila W. 1995. User charges in government health facilities in Kenya: effect on attendance and revenue. *Health Policy Plann* **10**: 164–170.
Parry J, Wright J. 2003. Community participation in health impact assessments: intuitively appealing but practically difficult. *Bull World Health Organ* **81**: 388.
Pellini A. 2004. Traditional pagoda associations and the emergence of civil society in Cambodia. *Cambodia Dev Rev* **8**(3): 5–8.
Portes A. 1997. Neoliberalism and the sociology of development: emerging trends and unanticipated facts. *Popul Dev Rev* **23**: 229–259.
Rifkin SB, Muller F, Bichmann W. 1988. Primary health care: on measuring participation. *Soc Sci Med* **26**: 931–940.
Rusten C, Sedara K, Eng N, Pak K. 2004. *The Challenges of Decentralisation Design in Cambodia*. Cambodia Development Resource Institute: Phnom Penh.
Sarriot EG, Winch PJ, Ryan LJ, *et al*. 2004a. A methodological approach and framework for sustainability assessment in NGO-implemented primary health care programs. *Int J Health Plann Manage* **19**: 23–41.
Sarriot EG, Winch PJ, Ryan LJ, *et al*. 2004b. Qualitative research to make practical sense of sustainability in primary health care projects implemented by non-governmental organizations. *Int J Health Plann Manage* **19**: 3–22.
Schwartz JB, Bushan I. 2004. Improving immunization equity through a public-private partnership in Cambodia. *Bull World Health Organ* **82**: 661–667.
Soeters R, Griffith F. 2003. Improving government health services through contract management: a case from Cambodia. *Health Policy Plann* **18**: 74–83.
South J, Fairfax P, Green E. 2004. Developing an assessment tool for evaluating community involvement. *Health Expect* **8**: 64–73.
Victora CG, Fenn B, Bryce J, Kirkwood BR. 2005. Co-coverage of preventive interventions and implications for child-survival strategies: evidence from national surveys. *Lancet* **366**: 1460–1466.
Waddington C, Enyimayew KA. 1989. A price to pay: the impact of user charges in Ashanti-Akim district in Ghana. Part I. *Int J Health Plann Manage* **4**: 17–47.
Waddington C, Enyimayew KA. 1990. A price to pay: the impact of user charges in Ashanti-Akim district in Ghana. Part II. *In J Health Plann Manage* **5**: 287–312.
Whitehead M, Dahlgren G, Evans T. 2001. Equity and health sector reforms: can low income countries escape the medical poverty trap? *Lancet* **358**: 833–836.
Willis CY, Leighton C. 1995. Protecting the poor under cost-recovery: the role of means testing. *Health Policy Plann* **10**: 241–256.
Woelk GB. 1992. Cultural and structural influences in the creation of and participation in community health programmes. *Soc Sci Med* **35**: 419–424.
World Health Organization. 2006. *Reproductive Health Indicators: Guidelines for Their Generation, Interpretation and Analysis for Global Monitoring*. World Health Organization. Reproductive Health and Research: Geneva.

DOI: 10.1002/hpm