

Research for Improved Health Worker Performance

International Workshop
Bergen, Norway, May 2009

Ottar Mæstad

with inputs from:

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1. A call for research for improved health worker performance¹

Health worker performance – a key to improved quality

A large share of the conditions that cause excessive morbidity and mortality on low income settings can be prevented and cured through simple, low-cost interventions. For instance, more than 40% of children who die before the age of five suffer from diarrhoea, pneumonia and malaria that can be cured through simple interventions.² Drugs and other necessary equipment have become increasingly available even in low income contexts during the last decades. But this is of little use unless health services are utilised and health workers diagnose and treat their patients according to guidelines.

Numerous studies have documented varying and often low levels of health worker performance.³ Inadequate case management (diagnosis and treatment) has large negative impacts on health outcomes. Low utilisation of certain health services – also related to low clinical as well as interpersonal quality – further exacerbates the problem.

Improvements are achievable with the existing human resources

There is a large potential for achieving higher quality of health services, even within the existing financial and human resource constraints. Several studies pointing at this potential were presented during the workshop. One study reported positive effects on health worker performance of community empowerment in Uganda.⁴ Several studies from Tanzania showed that 1) there is a know-do gap in clinical practice – doctors know more than they do in their practice, 2) peer pressure may lift the level of performance, 3) there is a latent professionalism in the workforce, and 4) many health workers spend large amounts of unproductive time at their health facilities.

Hence, the potential is there for improved health worker performance and better health outcomes. Importantly, much can be achieved without increasing the number of health workers. The golden question is: How can we get there?

Weak knowledge about how performance can be improved

Despite its crucial importance, our knowledge of how to strengthen the performance of health workers in low income contexts is very limited. The predominant idea has been that the solution is to increase training. However, it has become increasingly evident that training is only part of the answer. Regardless of the level of training, many health workers do not seem to perform up to their potential. Hence, to *enable* health workers to perform well is not enough unless they also have the *motivation* (or will) to do so. Reasons for low levels of performance thus extend far beyond limited abilities (knowledge, skills, equipment etc.) to personal goals and values, expectations from superiors, peers and communities, performance-related rewards/penalties, beliefs about and attitudes towards patients, job satisfaction and fairness issues, etc. Very few reliable studies have been conducted on how

¹ We are thankful to all workshop participants for their valuable inputs and in particular to John Cairns, Oddvar Kaarbøe and Guri Stegali for their efforts in facilitating and organizing the workshop.

² Jones G, Steketee R, Black R, Bhutta Z, Morris S. How many child deaths can we prevent this year? *The Lancet* 2003; 362: 65-71.

³ Rowe AK, de Savigny D, Lanata CF, Victoria CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? *The Lancet* 2005; 366: 1026-35.

⁴ Björkman M, Svensson J. Power to the people: evidence from a randomized field experiment on community-based monitoring in Uganda. *Quarterly Journal of Economics* 2009; 124: 735-769.

changes in such factors affect health worker performance, and existing studies often lack sufficient description of the intervention itself, the context, or the causal mechanisms at play to make judgements about the validity of the results outside the particular study setting.

Hence, there is an urgent need for studies along a wide spectrum of alternative interventions to build knowledge about their effects and costs, as well as to document why effects are achieved or not. There is also a need for researchers to coordinate their efforts to perfect their tools and ensure efficient use of resources in this field. Thus, in addition to the research agenda itself, there is also an agenda for researchers to be pursued.

2. An agenda for researchers

The agenda for researchers include strategies and actions – beyond the study of particular interventions – needed to effectively advance our knowledge on how to improve health worker performance.

The knowledge on how to improve health worker performance has developed disappointingly slowly. The following quote from Grimshaw *et al.*, 2004, is telling: “*despite 30 years of research..., we still lack a robust generalisable evidence base to inform decisions about strategies to promote the introduction of guidelines...into practice.*” Although more than 2200 reports⁵ on improving health worker performance have been identified, our ability to recommend evidence-based solutions to quality problems is limited. To bring about change, researchers need to:

Build on previous research. A comprehensive literature review to understand what has been done is required.

Standardise methods and reports. There is no single measure – no “vaccine” – that can address the problem. Meta-analyses which draw on a number of studies are therefore likely to be important in getting real answers. Studies therefore need to be designed and reported in a more standard way so that meta-analysis can be done. We highly emphasise the need to carefully document how interventions actually are implemented – acknowledging that actual implementation sometimes may deviate from protocols. The SQUIRE guidelines may be a useful place to start for a more standardised approach to reporting.⁶

Strengthen internal and external validity. Much health systems research, including research on health worker performance, has not been designed in ways that allows us to confidently attribute observed effects to the study intervention (internal validity). Increased use of randomised controlled trials (RCTs) and exploitation of natural experiments are needed to strengthen our ability to identify causality. At the same time, we must acknowledge that there are health system interventions that never will be possible to analyse as a RCT. It is important that the demand for internal validity does not discourage studies of such interventions.

In health systems research it is incredibly important to document the relevance of research findings for settings beyond the actual study setting (external validity). Indeed, the need to document external validity is much higher in health systems research compared to clinical research, because effect size is likely to be more strongly influenced by contextual factors. Consequently, RCTs will have less value unless we are unable to unpack the “black box” between intervention and outcome. Increased external validity can be obtained by carefully studying *why* observed effects arise. This can be done through careful documenting of context, planning for variation in contextual variables, identification of

⁵ Alex Rowe, unpublished observations.

⁶ Davidoff F, Batalden P, Stevens D, Ogrinc G, Mooney S, for the SQUIRE Development Group. Publication Guidelines for Improvement Studies in Health Care: Evolution of the SQUIRE Project. *Ann Intern Med* 2008; 149: 670-676.

alternative causal mechanisms between intervention and outcomes and reporting of intermediate outcome variables that may help distinguish between alternative causal pathways.

Develop a research agenda. The number of available policy alternatives is huge. A systematic mapping and a priori assessment of the alternatives is required to concentrate research efforts on interventions that are more likely to succeed. This process needs to be guided by previous intervention research, contextual information, as well as established theories of human behaviour. The research agenda must be dynamic and evolve as further insights are gained.

Coordinate and advocate. Based on the research agenda, research efforts need to be coordinated for the research agenda to be carried out more quickly and for less money. Coordination and advocacy should also contribute to the funding of the research agenda.

Strengthen the link between research and policy. The research community should facilitate the development of evidence-based policy making through effective dissemination of results, but also by involving policy makers in research projects where appropriate to increase ownership and understanding of the research findings.

3. A research agenda for improved health worker performance

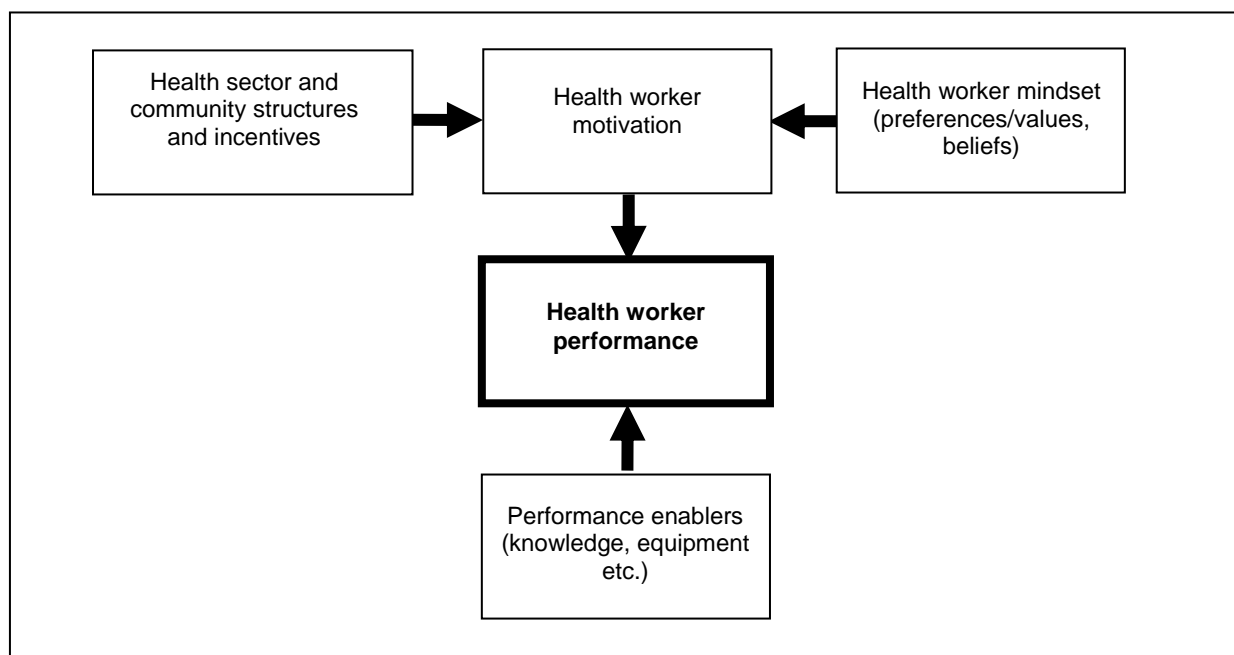
The research agenda defines the questions that need to be answered to design evidence-based policies for improved health worker performance. At the basic level, these questions can be formulated as:

- What are the performance problems?
- Why are there problems?
- Which interventions will address the problems, and why?
- How much will it cost?

Focus should be on performance problems with large impacts on health outcomes, in particular on lack of adherence to clinical guidelines. Broader performance issues, such as absenteeism and lack of courtesy, are also important to the extent that they reduce the utilization of health services.

The main focus of the workshop was to discuss a set of interventions with high priority in future research, drawing on the group's experiences with performance problems and existing studies of their causes. The set of interventions discussed fall within the framework outlined in the figure below.

Figure 1 highlights broad categories of factors that are thought to be crucial to improve health worker performance. Sub-categories of these factors are further specified in Box 1. Knowledge – along with factors such as equipment and supplies – are obviously essential in order to enable health workers to perform well. But ability is not enough; health workers also need to be motivated for high performance, i.e., they need to have the *will* to perform well. Inspired by the framework of principal-agent theory, health workers can be seen as agents operating on behalf of their principals, which on the one hand is the community (the clients) and on the other hand is their health sector employers. Within this framework, performance below ability (i.e., a know-do gap) will arise when incentive structures do not fully align the interests of health workers with the interests of their principals, or, in other words, when health workers are not sufficiently motivated.

Figure 1. Broad categories of factors affecting health worker performance

The level of motivation is determined in the interplay between health worker values and preferences, their beliefs, and the incentive structures and institutional arrangements they are facing. One set of incentives arises in the relation between health workers and the community that they serve. These are typically “social” incentives, for instance related to the desire to be liked and/or respected. Furthermore, there are incentives coming from within the health system itself, both monetary incentives and a broad range of social and other non-monetary incentives.

Box 1. Further specification of factors that potentially influence performance

- **Performance enablers**
Knowledge; skills; availability of supplies and equipment including information technology; clarity and comprehensiveness of guidelines; patient caseload; organisation including flow of patients and health-worker deployment.
- **Motivational factors**
 - Health sector structures and incentives:** Definition of performance targets; expectations of peers and superiors; performance monitoring; performance related rewards and penalties, both financial and non-financial; worker participation in planning for improved performance; legal rules governing health worker behaviour; behaviour of role models; incentives faced by leaders and supervisors; promotion of drugs by pharmaceutical companies.
 - Community structures and incentives:** Community expectations to health worker performance including local values and traditions; performance feedback mechanisms; outside employment opportunities; competition from other providers.
 - Health worker mindset:** Personal goals; professional values including sense of duty and responsibility and attitudes to corruption; altruism and empathy; self-confidence; job satisfaction; beliefs about the effectiveness of clinical guidelines; beliefs about how performance affects behaviour and attitudes of patients, community members and colleagues; attitude to patients' socio-demographic factors such as age, sex, education, wealth, race and ethnicity; fairness ideals including attitudes to reciprocity.

Particular interventions may draw on elements from several of these factors. For instance, supervision may contain both a knowledge component (teaching), a non-monetary incentive component related to maintenance of esteem, and a mind setting component related to strengthening of self-confidence. Likewise, training interventions geared towards improving the levels of knowledge may also contain elements that try to change health worker mindsets, for instance by strengthening professional values.

In the following, we highlight some (groups of) interventions that emerged during the workshop as important avenues for future research.

Community empowerment. The basic idea of community empowerment is to strengthen accountability of health workers towards their clients, for instance by improving their knowledge about the quality of care, and by overcoming free-rider problems in confronting health workers with community complaints.

Promising results were reported from a randomized controlled trial in Uganda that attempted to improve health worker performance by empowering the communities. The intervention included a survey of health facilities and households to identify performance gaps. Results from the survey were conveyed to local communities by representatives from Civil Based Organisations (CBOs). CBOs also facilitated meetings between communities and health personnel that resulted in a formal agreement of how things could be improved. After one year, quality of care – measured by time use per patient and use of equipments – had improved, and there was also some evidence of lower child mortality in the intervention area. Moreover, there is some evidence to support that the improvements actually came about through a strengthening of community monitoring of the health facilities.

One potential challenge with community empowerment is that quality as perceived by the community is not necessarily the same as what would contribute most to improved health outcomes. In many low income communities there is strong belief in the benefits of medication. Community empowerment without a change in such beliefs may lead to (more) overmedication. One might therefore consider including an education component along with community empowerment to increase health impacts. Furthermore, the asymmetric information between provider and clients puts limits on what information clients themselves can extract about the quality of care. Evaluation of quality from outside may therefore be needed, which will add to the costs of the intervention.

Much is yet unknown about what can be achieved through community empowerment, but the positive results from Uganda suggest that this avenue should be further explored.

Pay-for-performance. A few low income countries have implemented financial incentives to health service providers, and more countries are likely to follow in the near future. Financial incentives are potentially powerful motivational mechanisms, but our knowledge of their impacts is very limited. In the few studies available, there is a notable lack of reporting of contextual factors and identification of causal mechanisms that could have informed about the external validity of the study results. The scope for further research is therefore huge.

The primary focus of pay-for-performance schemes is usually to increase the utilisation of health services. This follows from the inherent focus on quantifiable performance targets and the fact that utilisation is much easier to quantify than the quality of care. For instance, adherence to guidelines might be costly to quantify on a routine basis. This said, financial incentives related to utilisation of services can indirectly lead to quality improvements insofar as low utilisation is caused by low perceived quality of services. (Here again, since this mechanism relies on patients' *perception* of quality, there is no guarantee that clinical quality has improved even if patients think that quality is higher.)

Pay-for-performance schemes can be designed in a number of ways, and the potentials of the different approaches are yet to be documented. Should financial rewards be given on an individual or a team basis? Should rewards be related to absolute or relative performance improvements? And what are the

trade-offs between many and few performance indicators? A major constraint for pay-for-performance schemes is the low quality of health information systems in many low income countries. Furthermore, pay-for-performance schemes may have unintended consequences, such as less attention being paid to important tasks that are not incentivised, as well as strategic manipulation of performance targets. It is important therefore to monitor effects in a broad range of dimensions. The introduction of financial incentives also has the potential of affecting the nature and force of other accountability mechanisms currently in place, both between providers and communities and between providers and their employers. There is a concern that financial incentives may “crowd out” intrinsic motivation to perform, which will be particularly harmful for tasks that cannot easily be monitored.

Supportive supervision. Supervision is currently one of the main strategies advanced to maintain high levels of health worker performance. The effect of supervision in low income contexts is, however, contested. Common complaints include: low frequency of supervisions, bias towards easily quantifiable indicators at the expense of quality issues, and too much “inspection” rather encouragement to perform. A recent survey from Tanzania showed that only one-third of the health workers had had their clinical practice observed by an external supervisor.

As already mentioned, supervision may draw on a number of different mechanisms for improving health worker performance (improve knowledge, strengthen social incentives, change mindsets). Further research is needed on how to best activate these different mechanisms. One suggestion for strengthening the incentives is to combine supervision with some accreditation scheme.

A basic challenge is how to make supervision happen in practice. Various incentive mechanisms may also be used to overcome this challenge. Moreover, the use of modern information technology is one way of reducing the costs of supervision, especially in countries where health facilities are relatively inaccessible.

Quality management processes. The basic idea of quality management processes is to institute a system that unites all health workers to deal with quality issues on a continuously basis. Teams are introduced to a set of improvement tools, usually involving Plan-Do-Study-Act cycles, a process of defining goals and interventions, executing the interventions, studying performance, and changing interventions appropriately.

The idea of quality management processes has become popular in many industries around the world. There are also many initiatives of this kind in the health sectors in low income countries, but the evidence of their impacts on health worker performance is scarce (one RCT is ongoing in Malawi).

Advantages of the quality management process include flexibility in terms of the range of performance issues that can be addressed, and a high degree of local involvement, which strengthens ownership to the quality improvement process. The active involvement of the workforce may create a better understanding among the workers about expected achievements, which may protect against some of the undesired side-effects of more mechanically imposed financial and non-financial incentive schemes.

Quality management processes is a kind of “meta-intervention” that may include any of the particular interventions discussed elsewhere as integral components. Furthermore, quality management processes might be strengthened by attaching accreditation schemes and systems for sharing of experiences across health facilities.

One important challenge is to establish ownership to the very idea of a quality management processes. It should not be taken for granted that health workers have the fundamental problem solving attitude to spark and maintain the process; they may simply lack interest in addressing quality problems. Proponents of the approach claim that interest in the process may emerge as the process unfolds. However, this remains to be properly documented. Moreover, the problems defined by the health workers are not necessarily performance problems with large negative health impacts. Thus, since a lot

of discretion is left to the health facility level, there is a risk that action may not be well focused. Thus, success seem to depend on strong leadership.

Training. Health workers in many low income countries would probably rate training high among their preferred measures for improved performance. This preference is undoubtedly linked to the high allowances that usually come with training seminars. In fact, many training seminars induce the workers *not* to provide services, by drawing them away from their posts.

There is of course no doubt that knowledge is a basic requirement for high performance. The scarcity of qualified health personnel in many low income countries implies that there is a need for continuous efforts to increase the knowledge and skills of the workforce. This must obviously be part of the strategy for pre-service training, recruiting and retaining new health workers, but it can also imply a focus on in-service training.

Important research questions include what type of training that is needed to effectively raise the level of knowledge and skills, both in the short and the long run. This must be linked with an assessment of which kind of knowledge and skills that are most important in order to improve health outcomes in the local context. A too heavy reliance in the past on “western style” medicine and training that assumes the existence of equipment that is not available in practice may have reduced the usefulness of the training.

Shaping mindsets (preference/values and beliefs). The standard principal-agent model assumes that agents have constant and unchangeable preferences. This is not a satisfactory model in the case of the health workforce. Much focus has traditionally been devoted to the development of professional values of health workers. The difficulty of designing appropriate incentive structures for health workers, combined with the asymmetric information that reduces the possibilities for effective supervision from the client side, has made it important to shape health workers with preferences that are well aligned with the goals of their principals. Professionalism, vocation and altruism are different concepts used to describe health worker preferences that differ from the selfishness of the “homo economicus”.

One way of changing people’s values and preferences is through role modeling. Health workers are exposed to role models during their training, and it is not unlikely that these models have considerable influence on future behaviour. We are not aware of systematic attempts to expose people in service to strong role models and measure its impact on performance. This and similar avenues of research that aim at changing health worker values and beliefs need to be further explored.

In addition to interventions that aim at shaping mindsets, it would be useful with research that provides a deeper understanding of health worker preferences and beliefs. Interventions that aim at changing health worker behaviour through monetary or non-monetary incentives, community empowerment etc. are all based on particular assumption about health worker mindsets. Much of the debate about which incentive structures that will have the greatest impact could be resolved if we had more knowledge about the underlying preferences and beliefs. Experimental studies (e.g., lab experiments) and creative field experiments can be used for these purposes.

The workshop also explored the possibilities of improving health worker performance through the use of **modern information technology**, such as mobile phones. Technology can for instance improve performance by easing access to knowledge and information. Moreover, information technology may strengthen the impact of other interventions. In particular, instant data collection with mobile phones may address some of the inherent information problems in pay-for-performance schemes. Furthermore, the use of mobile phones may enable more frequent contact between health service providers and their supervisors, thus increasing the scope and effect of supervision.

Programs are available on mobile phones that allow for large amounts of data to be submitted with only one SMS (text message). Rapid data processing and feedback from a central server may in itself

be a motivation to use the system. There is also a potential for using such devices in monitoring quality indicators such as the adherence to clinical guidelines, but this seems to require quite a large resource input from the providers, thus reducing the productive potential of the health workforce.

4. Concluding remarks

The research agenda outlined above highlight important avenues for future research. Yet, the agenda needs further refinement. There is a need to:

- Make more systematic reference to existing studies and reports.
- Make clearer priorities among interventions (or combinations of interventions) based on knowledge of contextual factors and established theories of human behaviour.
- Make references to other overlapping research agendas, such as the INRUD (International Network for Rational Use of Drugs) and the Bamako Initiative for Health Systems Research.

Adequate health worker performance is key to the success of all initiatives to improve health outcomes, including all the bold international health initiatives that currently are being rolled out in many low income countries (Presidents Malaria Initiative, Global Fund, GAVI, Booster, PEPFAR, etc.). We strongly urge Ministries of Health and the governing bodies of these international programmes to get a focus on health worker performance inserted into their activities. Research on how to improve health worker performance should be part of this agenda.

Appendix: Workshop programme

INTERVENTIONS FOR IMPROVED HEALTH WORKER PERFORMANCE BERGEN, NORWAY, 14-15 MAY 2009

International workshop organised by

*Chr. Michelsen Institute, Bergen
Health Economics Bergen (Department of Economics, University of Bergen)
Centre for International Health (University of Bergen)*

Venue:

Chr Michelsen Institute, Fantoft, Bergen

Aim of the workshop:

Define a research agenda for improved knowledge of the effectiveness of strategies for improved health worker performance in low income countries.

**DAY 1
SUPERVISION AND INCENTIVES**

- 09.00-09.15** **Opening**
- 09.15-10.15** **Keynote address: Jakob Svensson** (IIES/University of Stockholm, Sweden)
- 10.15-10.30** **Coffee/Tea**
- 10.30-11.30** **Supervision from below: Power to the people.**
Jakob Svensson (IIES/University of Stockholm, Sweden)
- 11.30-12.30** **Monetary incentives (pay for performance)**
Kara Hanson (London School of Hygiene and Tropical Medicine, UK)
- 12.30-13.30** **Lunch**

- 13.30-14.30 Non-financial incentives, recognition and respect**
Ken Leonard (University of Maryland, USA)
- 14.30-14.45 Coffee/Tea**
- 14.45-15.45 Supportive supervision: Applications of modern technology**
Thorkild Tylleskär (Centre for International Health, University of Bergen, Norway)
- 15.45-16.30 Roundtable discussion**
Moderator: John Cairns (London School of Hygiene and Tropical Medicine, UK, and Health Economics Bergen, Norway)
- 19.00 Dinner at Bryggen Tracteursted**
-

DAY 2
KNOWLEDGE AND MINDSET

- 09.00-10.00 Keynote address: Alex Rowe** (Centers for Disease Control and Prevention, USA)
- 10.00-10.15 Coffee/Tea**
- 10.15-11.15 Training, yes, but what else?**
Ottar Mæstad (Chr Michelsen Institute)
Aziza Mwisongo (National Institute of Medical Research, Tanzania)
- 11.15-12.15 Knowledge vs. mindset. Illustrations from microcredit in Tanzania**
Bertil Tungodden (Norwegian School of Economics and Business Administration and Chr Michelsen Institute, Norway)
- 12.15-13.30 Lunch**
- 13.30-14.30 Quality management and problem solving attitudes**
Joanna Schellenberg (London School of Hygiene and Tropical Medicine, UK)
- 14.30-14.45 Coffee/Tea**
- 14.45-15.45 Roundtable discussion**
Moderator: John Cairns (London School of Hygiene and Tropical Medicine, UK, and Health Economics Bergen, Norway)
- 15.45-16.00 Closing remarks**
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SUMMARY

Inspired by a vision to build knowledge on how to implement high quality health care in low income contexts, Chr Michelsen Institute (CMI), Health Economics Bergen and the Centre for International Health (CIH) at the University of Bergen hosted an international workshop on Interventions for improved health worker performance on 14-15 May 2009.

This report summarises key messages from the workshop. It presents a call for research for improved health worker performance, an agenda for action for the research community, as well as a research agenda.

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CMI combines applied and theoretical research. CMI research intends to assist policy formulation, improve the basis for decision-making and promote public debate on international development issues.