Linking local knowledge with global action: examining the Global Fund to Fight AIDS, Tuberculosis and Malaria through a knowledge system lens

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Abstract New global public health institutions are increasingly emphasizing transparency in decision-making, developing-country ownership of projects and programmes, and merit- and performance-based funding. Such principles imply an institutional response to the challenge of bridging the "know–do gap", by basing decisions explicitly on results, evidence and best practice. Using a knowledge systems framework, we examine how the Global Fund to Fight AIDS, Tuberculosis and Malaria has affected the ways in which knowledge is used in efforts to combat these three diseases. We outline the formal knowledge system embedded in current rules and practices associated with the Global Fund's application process, and give three examples that illustrate the complexity of the knowledge system in action: human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) policy in China; successful applications from Haiti; and responses to changing research on malaria. These examples show that the Global Fund has created strong incentives for knowledge to flow to local implementers, but with little encouragement and few structures for the potentially valuable lessons from implementation to flow back to global best practice or research-based knowledge. The Global Fund could play an influential role in fostering much-needed learning from implementation. We suggest that three initial steps are required to start this process: acknowledging shared responsibility for learning across the knowledge system; analysing the Global Fund's existing data (and refining data collection over time); and supporting recipients and technical partners to invest resources in linking implementation with best practice and research.

Bulletin of the World Health Organization 2006;84:629-635.

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Introduction

It is widely held that more needs to be done to translate knowledge into action in global public health, to overcome the "know–do gap".[1,2] Influential work has examined the supply of research — where it is coming from, who is paying for it, and what can be done to improve health research systems in low- and middle-income countries.[3–6] However, relatively little is known about the actual mechanisms of decision-making, including how research is used in setting funding priorities or designing intervention programmes. Nor do we know how this is changing as global public health institutions increasingly emphasize principles of transparency, recipient-country ownership of programmes, and merit- and performance-based funding (e.g. see the 2005 Paris Declaration on Aid Effectiveness[7]). Such principles imply that there will be improvements in how knowledge is accessed and applied, yet the actual institutional rules that support the use of research and other forms of knowledge, and how they play out in practice are, ironically, something we know little about.

In this paper we draw on a recent study that examined how a major financing mechanism at the forefront of the new breed of health institutions, the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund), is affecting the role of knowledge in decision-making. Using the Global Fund as a case study, and taking a knowledge systems approach, we ask how those taking actions to fight HIV/AIDS, tuberculosis and malaria respond to the new demands on knowledge that emerge from these new institutional structures. We show that the Global Fund has had a mixed impact on the knowledge system that underpins efforts to combat these diseases, with strengths in some areas countered by a lack of support for learning from implementation. Improving on this will require new commitment by the Global Fund and its partners to the knowledge dimensions of their work.

The knowledge systems approach

Approaches to understanding the role of knowledge in development have tended to take either the individual ("knowledge transfer") or the organization ("knowledge management") as the basic unit of analysis. Yet development is also fundamentally an interorganizational activity. Individual capacities in one organization can be counteracted by weaknesses in another, and good relationships between key groups can generate synergies such that the capacity of the whole is greater than the sum of its parts. While the importance of the broader "enabling environment" is sometimes acknowledged,[5,8] there are few conceptual tools available that take a systems perspective to help us understand knowledge across

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Ref. No. **05-028704**

(*Submitted: 30 November 2005 – Final revised version received: 19 May 2006 – Accepted: 23 May 2006*)

organizations. We have therefore framed our investigation using a knowledge systems approach.

For the purposes of this study, a knowledge system is defined as a network of actors connected by social relationships, either formal or informal, who dynamically combine knowing, doing and learning to bring about specific actions for sustainable development. This definition is adapted from work in the agricultural sector, and places the relationships between individuals, organizations and institutions, and their capacities to generate and respond to new knowledge, at the centre of the analysis (for example, the effect of large-scale technical advisory services on farmers' decision-making).[9] Most knowledge systems are by-products of attempts to achieve more tangible goals, such as health care; yet the actual achievement of those goals depends in part on the ways in which knowledge is generated, shared, and used in decision-making. In knowledge systems analysis it is the performance of the whole system, the collective ability to generate, mobilize and apply high quality knowledge that is of concern. As such, this study was concerned not with the Global Fund per se, but with the broader knowledge system that underpins actions to fight HIV/AIDS, tuberculosis and malaria. We examined the way in which the Global Fund's institutional design and governance connect, shape and influence the range of actors involved in effecting these actions.

The Global Fund to Fight AIDS, Tuberculosis and Malaria

We chose the Global Fund as an example of a major implementation-oriented (not research-oriented) organization that highlights the new approaches to decision-making in global public health. Set up in 2001 in response to the growing epidemics of AIDS, tuberculosis and malaria in developing countries, the Global Fund is a financing mechanism that uses revenue received primarily from donor governments. At November 2005, the Global Fund had approved funding of US$ 4.1 billion for more than 320 grants in 128 countries, and disbursed US$ 1.7 billion. From its inception in 2001 until 2008, a total of US$ 8.5 billion has been pledged or contributed to the Global Fund.[10,11] Its emergence has been rapid and remarkable, and has generated widespread interest and comment.[12–14]

To focus our study we investigated a specific decision where knowledge is critical — whether to fund an application. We sought to answer the questions of:

- how do applicants get the knowledge they need to write a successful application?
- what knowledge do assessors use to assess an application?
- how does the Global Fund's governance shape how knowledge is accessed, used and shared?

These questions served as entry points to define the knowledge system (who is "in" it), and the mechanics of how it functions (what are the formal mechanisms in place for linking knowledge?). They also limited our attention to the groups involved in the application process. These included:

- the Global Fund Secretariat, responsible for administering the Global Fund's rules and enforcing its principles;
- the Global Fund Board, who make the actual funding decisions;
- the Technical Review Panel, an independent group of experts who assess applications made to the Global Fund;
- technical advisers to the Global Fund and to applicants, including WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS); and
- country applicants in China and Haiti.

We conducted 28 semi-structured interviews with members of each of these groups, and analysed them using a combination of open coding and thematic techniques. We also analysed relevant policy statements, web sites, applications, and other written materials. We outline the mechanics of the formal knowledge system briefly in the next section. From there we focus on three events or issues that illuminate the complexities of the "real world" knowledge system. We identify key gaps, and some first steps towards bridging them.

The application process

The Global Fund requires that applications are submitted through a Country Coordinating Mechanism (CCM). This is a national-level committee made up of representatives of country governments, civil society, the private sector, academia, multilateral and bilateral agencies and people living with or affected by the diseases (for discussions of CCMs, see references 15–18). These groups are responsible for the application, and oversee the projects under implementation, although the projects are actually implemented by principle recipients, who may or may not have been members of the original CCM. CCMs also commonly hire external consultants to advise on a range of issues, including technical matters, but particularly grant-writing and interpretation of the Global Fund's application form and requirements.

The Global Fund calls for proposals from countries in rounds. Proposals are assessed by the Technical Review Panel, consisting of 22 experts selected on the basis of their technical expertise as well as their experience in developing countries. Specialists cover the three disease areas, and "cross-cutting" members cover areas such as health systems or management. While the expertise of these members is the primary foundation for decision-making, the technical agencies have also provided them with a library of up-to-date technical material, and in later proposal rounds the Technical Review Panel has been supported by "help desk" functions from WHO, UNAIDS, and the Stop TB Partnership. Approved proposals are presented by the panel directly to the Board (not the Secretariat) as a block, so Board members do not discuss individual countries' applications, but approve groups of proposals depending on the availability of funds. The final agreements with countries, including oversight and monitoring and evaluation processes, are then negotiated with the Secretariat.

These structures and rules form the "formal" knowledge system created by the Global Fund's application process, as illustrated in Fig. 1.

The knowledge system in action: three illustrations

The way that the knowledge system created by the Global Fund played out in reality was somewhat different to the formal system presented in Fig. 1. The following three examples are not exhaustive, but illustrate the dynamics within this knowledge system.

1. AIDS in China: changing local policy

China's applications for funding for HIV/AIDS projects were rejected by the Technical Review Panel in the first two proposal rounds. In one round, a project targeting drug users was rejected because it did not include harm reduction policies, an integral component of best practice in this context. Between the first and the third round, in just over two years, China's HIV/AIDS policy has undergone a dramatic turnaround to include harm reduction both in the Global Fund project, and in national policies. The Global Fund has now given China provisional funding (subject to adequate performance) of US$ 188 million for HIV/AIDS programmes.

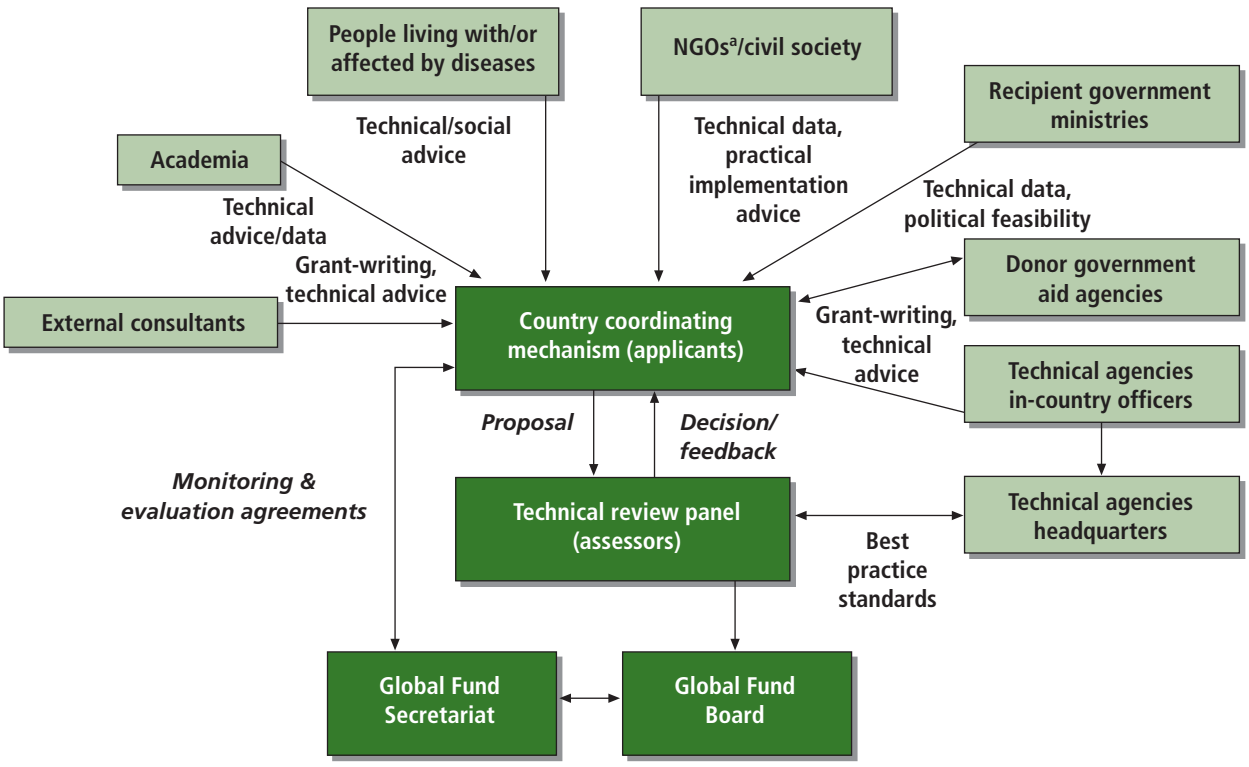
While it would be easy to characterize this process as the Technical Review Panel pressuring China to adopt measures that China did not find politically attractive, this is an over-simplification. Members of the CCM described a process whereby those rejections slowly changed the dynamics of existing debates in the Chinese HIV/AIDS policy community regarding the concept and role of harm reduction. The CCM reconfigured the knowledge brought to the decision-making process, by bringing previously separate voices for harm reduction together in a forum where they could join forces and gain leverage from the incentive of major funding. The rejections also prompted the CCM to hire international advisers to help write their proposals, these advisers being influential in raising the profile of international best practice. Informal coalitions developed amongst harm reduction proponents who, despite having different organizational affiliations, could work together within the CCM to bring about this change.

The Global Fund application process became a major force in fostering the engagement of officials from health and other sectors with international best practice and experience from other countries. As a result, the policies in China became more outward-looking, and moved closer to best practice. This example illustrates that institutional innovations can encourage countries to engage with international knowledge and become more open to learning and adapting global-level knowledge to local conditions.

2. Success in Haiti: local or global?

Haiti had early and continued success with the Global Fund, having total approved funding of just over US$ 100 million to date. There was no mismatch between the proposal from Haiti and international best practice as the Technical Review Panel understood it — not because the Haitian applicants were uncritically accepting of best practice standards, but rather because nongovernmental organizations on the CCM had been active in global health research, and work in Haiti had contributed to best practice standards. This was facilitated by strong ties between two Haitian health nongovernmental organizations and North American universities, with collaborative research published in peer reviewed academic journals[19–28] and representation on committees that advise international best practice. Their publication of results from a trial of community-based anti-retroviral therapy in a very poor region of rural Haiti was among the first to show that successful treatment of HIV/AIDS is possible in resource-poor settings,[24,28] and was cited in arguments supporting the initial development of the

Fig. 1. **The formal knowledge system for applications to The Global Fund to Fight AIDS, Tuberculosis and Malaria**



[a] NGOs = Nongovernmental organizations

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Global Fund.[29] The ability of applicants to apply local knowledge to a proposal, but simultaneously draw on the legitimacy conferred by participating in the broader, global-scale knowledge system (academic publication and panels advising international standards) gave the Haitian proposal strength beyond that which could be expected by examining the local resources alone.

This example illustrates that the global-scale knowledge system can respond and change as a result of programme implementation in a very resource-constrained setting, provided that the local-scale implementers have the capacity to engage in that system. Yet the role of implementers as knowledge generators (as opposed to knowledge recipients) is not well supported by the existing knowledge system. Applicants to the Global Fund can request support for operational research, but there are few incentives for them to do this.[30] This example shows that where implementers can effectively use formal, academic knowledge avenues, their expertise can become a legitimate source of new knowledge that global-level actors can absorb, respond to, and transform into new global best practice.

3: Malaria: who is responsible for change?

In January 2004, the *Lancet* published a Viewpoint article that vehemently criticized the Global Fund for funding malaria projects that used treatments in populations where the parasite had been shown to have developed significant resistance, and was therefore no longer effective.[31] The Global Fund's response was rapid, and included consultation with the authors of the article and representatives from the Technical Review Panel, Roll Back Malaria and other experts, and an independent review of the projects. The countries that had made the original decisions not to apply for funding for the new treatments were not formally consulted in this process. Twenty-two projects were identified as warranting reprogramming, which started soon after. The response demonstrates capacity for learning by the Global Fund in the face of public criticism, but leaves open the question of how this conflict arose in the first place.

While the authors of the original article and others[32] focused their criticism on the Technical Review Panel, several interviewees argued that this was not a straightforward question of competency or expertise, but a more subtle question of who is to be held responsible for enforcing policy change as technical knowledge changes over time, with a number of uncertainties to be considered. A country's actual capacity to change was affected by the cost and availability of the alternative treatment (which was already in short supply), the need to retrain staff, and the poor quality of data on drug efficacy in many countries. As such, the original decisions by the Global Fund and its recipient countries to stay with existing treatment policies were due to ambiguous lines of responsibility, and local, informal judgements of cost and risk.

While the Technical Review Panel initially accepted the applicants' preference for conventional treatments, the authors of the article, by accusing the Global Fund of malpractice, were able to harness the influence that the Global Fund could exert over recipient countries to override country concerns and fast-track this process of change. The Global Fund has also taken steps to improve its ability to respond to research, including adding a clause in project agreements to the effect that they are subject to review if scientific knowledge changes. This example shows that the Global Fund is capable of responding quickly and openly to new information, and refining its activities accordingly. It also shows that where institutions are committed to "technical" decision-making, the need to respond to formal critiques from the global research community will take precedence over informal, local-level risk assessment.

Discussion

These examples show a dynamic interplay between knowledge of local implementation (data and experience gathered at the local level, including technical, political and practical knowledge), knowledge based on global research (conducted by public and private research organizations, as well as some nongovernmental organizations), and knowledge of "best practice" (technical agencies' guidelines that draw on both local and global sources to build lessons that are likely to be applicable across locations).

The Global Fund structured this interplay by creating incentives and processes that supported knowledge flows to local implementers. The example from China showed that this can be an effective source of change, even in countries that have traditionally made decisions largely independently from the global knowledge system. But, apart from monitoring and evaluation procedures (which are designed for project accountability rather than broader learning) there are no formal structures for lessons from implementation to flow back to best practice or research. This is despite the fact that local implementation is often innovative and uncertain, as the scaling-up efforts made possible by the Global Fund are largely unprecedented.[29] Indeed, many interviewees expressed concern that valuable lessons in scaling up were being lost. The technical agencies argued that increased demand on their staff in advising local-level applicants meant that they had no remaining capacity to draw lessons from implementation. Local implementers, in turn, had to meet the Global Fund's application requirements and monitoring and evaluation procedures, with little incentive to consider broader lessons that may inform others. The example of Haiti showed that where there is capacity to draw lessons from implementation, Haiti's credibility as an applicant was enhanced, and global best practice incorporated this new knowledge.

The remaining candidate for learning from the Global Fund's programmes was the research-based knowledge sector. Although the Global Fund has occasionally commissioned research, and there are a number of independent studies of their operations, these efforts tend to be an ad hoc collection driven by particular issues or interests (such as this study). As the malaria example showed, the Global Fund can respond to new knowledge that emerges via the research sector, but this can generate tensions between formally documented, technical research-based knowledge and informal, contextual implementation-based knowledge. It is not clear whether or how countries' implementation experience can also contribute to refining the Global Fund's own processes and procedures.

Consequently, over time this knowledge system is placed under pressure, as lessons from implementation do not routinely circulate through the system to come back to improve new proposals at the project level, or operations at the global level. While we typically think of

the know–do gap in terms of failure to apply what is already known, it is equally applicable in the sense that experience from "doing" is not adequately transformed back into useable knowledge.

The Global Fund's innovative approach to health financing has had significant flow-on effects for the knowledge system that supports efforts to combat AIDS, tuberculosis and malaria. We argue that, by considering itself as part of a larger knowledge system, the Global Fund can use this influence to build the capacity across that system to learn from implementation and refine its own processes accordingly. While space precludes us from making detailed proposals, we suggest that there are three fundamental steps that must underlie any efforts to correct the dominant one-way flow, and build a more effective knowledge system.

Acknowledge responsibility

All participants need to acknowledge that they hold a shared responsibility for the functioning of the knowledge system as a whole. Recognizing interdependence is an essential first step to setting a shared knowledge agenda that aims to strengthen the connections between different groups, and prioritize learning from implementation. This requires support, leadership and planning at the highest levels of the organizations involved.

Analyse existing data

The Global Fund's performance database should be carefully and consistently evaluated for lessons from existing project successes and failures. This evaluation, which could be conducted in partnership with the technical agencies, should include recommendations for integrating monitoring and evaluation efforts into a broader knowledge agenda focused on learning from implementation.

Apply resources

Knowledge work requires resources and investments of time and energy, resources that are in short supply in implementing countries. The Global Fund could support recipients to engage with the research sector by permitting research (beyond operational research) to be included in Global Fund projects. The Global Fund potentially offers a rare opportunity for developing countries to engage with international research institutions on their own terms. The Global Fund could also support technical agencies' efforts to attract more resources by jointly setting targets and forming a unified front in lobbying donors for financing, according to a defined knowledge agenda.

Conclusions

The Global Fund has had a profound impact on the knowledge system that underpins actions to tackle AIDS, tuberculosis and malaria, and has demonstrated a genuine ability to respond to new knowledge. It also has real potential to enhance effectiveness across the system.[12,30] Importantly, by putting countries in control of application decisions, it also offers them a greater ability to integrate local knowledge into their proposals. Yet these innovations only address part of a far more complex knowledge system, the bulk of which still characterizes *funding* recipients as *knowledge* recipients, rather than active and important knowledge generators. To combat this, the Global Fund and its partners in the knowledge system that supports efforts to combat HIV/AIDS, tuberculosis and malaria must start to see their work as inherently knowledge-based, knowledge-intensive and, most importantly, fundamentally interdependent. Ongoing improvement to this system, and the collective ability to tackle these diseases effectively, will require a commitment to learning from implementation that is based on a deep appreciation of the multiple, shifting gaps that currently fragment the knowledge system. While we have illustrated some of this complexity and identified first steps, taking these steps is itself a major experiment in how to maximize the benefits of knowledge for global public health. ■

Funding: This article is based on research supported (in part) by a grant from the United States National Oceanic and Atmospheric Administration's Climate Program Office (formerly the Office of Global Programs) through the Environment, Science and Development Program for the Knowledge Systems for Sustainable Development Project. Lorrae van Kerkhoff was also supported by the Australian-American Fulbright Foundation, and Land and Water Australia.

Competing interests: none declared.

Résumé

Etablir un lien entre savoir local et action à l'échelle mondiale : le Fonds mondial de lutte contre le SIDA, la tuberculose et le paludisme considéré comme système de connaissances

Les nouvelles institutions mondiales dans le domaine de la santé publique mettent de plus en plus l'accent sur la transparence dans la prise de décision, l'engagement des pays en développement dans les projets et les programmes et un financement fondé sur le mérite et les résultats. De tels principes signifient que les institutions doivent s'attacher à combler le fossé entre «faire et savoir», en fondant explicitement les décisions sur les résultats, les faits et les meilleures pratiques. Partant de la définition générale des systèmes de connaissances, on a examiné comment le Fonds mondial de lutte contre le SIDA, la tuberculose et le paludisme avait influé sur l'utilisation des connaissances dans les efforts de lutte contre ces trois maladies. On a présenté le système de connaissances formel établi par l'intermédiaire des règles et des pratiques actuellement associées au processus d'application du Fonds mondial et donné trois exemples qui illustrent la complexité de la mise en œuvre pratique de ce système de connaissances : la politique chinoise concernant le VIH/SIDA ; les succès programmatiques enregistrés en Haïti ; et les réponses à l'évolution des connaissances issues de la recherche sur le paludisme. Ces exemples montrent que le Fonds mondial a mis en place d'importantes incitations pour que les connaissances parviennent jusqu'aux personnes chargées localement de la mise en œuvre des programmes; en revanche, il n'a guère établi de mesures incitatives ou de structures favorisant le retour des enseignements potentiellement utiles, tirés de cette mise en œuvre, afin que ces enseignements puissent faire évoluer les meilleures pratiques mondiales ou le savoir issu de la recherche. Le Fonds mondial pourrait jouer un rôle important dans la promotion d'un retour d'information extrêmement précieux de la part des responsables de l'application des programmes. Trois mesures s'imposent dans

un premier temps : reconnaître les responsabilités partagées des intervenants dans l'acquisition d'enseignements à travers le système de connaissances; analyser les données dont dispose actuellement le Fonds mondial (et améliorer progressivement la collecte des données) ; et aider les bénéficiaires et les partenaires techniques à affecter les ressources grâce à l'établissement d'un lien entre la mise en œuvre des programmes et l'évolution des meilleures pratiques et du savoir issu de la recherche.

Resumen

Vincular los conocimientos locales y la acción mundial: examen del Fondo Mundial de Lucha contra el SIDA, la Tuberculosis y la Malaria desde la perspectiva de los sistemas de conocimientos

Las nuevas instituciones mundiales de salud pública están haciendo cada vez más hincapié en la transparencia de la adopción de decisiones, la identificación del país en desarrollo con los proyectos y programas, y la financiación basada en los méritos y el desempeño. Tales principios exigen una respuesta institucional al reto de cerrar la «brecha teórico-práctica», de manera que las decisiones se basen explícitamente en los resultados obtenidos, en la evidencia y en las prácticas más adecuadas. Usando un marco de sistemas de conocimientos, analizamos la influencia del Fondo Mundial de Lucha contra el SIDA, la Tuberculosis y la Malaria en la manera de utilizar los conocimientos en el contexto de las actividades emprendidas para combatir esas tres enfermedades. Describimos en términos generales el sistema de conocimientos formales incorporado en las normas y prácticas seguidas actualmente en los procedimientos de ejecución del Fondo Mundial, aportando tres ejemplos que ilustran la complejidad del sistema de conocimientos en acción: la política referente al virus de la inmunodeficiencia humana/síndrome de inmunodeficiencia adquirida (infección por el VIH/SIDA) en China; las iniciativas llevadas a cabo con éxito en Haití; y las respuestas a la evolución de las investigaciones sobre la malaria. Estos ejemplos muestran que el Fondo Mundial ha creado poderosos incentivos para lograr que los conocimientos lleguen a los ejecutores locales, pero con escasos estímulos y pocas estructuras para que las enseñanzas potencialmente valiosas derivadas de la ejecución reviertan en beneficio de las prácticas óptimas mundiales o los conocimientos basados en investigaciones. El Fondo Mundial podría contribuir de forma significativa a fomentar el muy necesario aprendizaje a partir de la ejecución. Sugerimos que para dar comienzo a ese proceso se tomen tres medidas iniciales: reconocimiento de la responsabilidad compartida en cuanto al aprendizaje en todo el sistema de conocimientos; análisis de los datos actuales del Fondo Mundial (y mejora del acopio de datos con el tiempo); y apoyo a los beneficiarios y los asociados técnicos para que se dediquen recursos a vincular la ejecución a las mejores prácticas e investigaciones.

ملخص

ربط المعارف المحلية بالعمل العالمي: فحص للصندوق العالمي لمكافحة الإيدز والسل والملاريا من وجهة نظر نظام للمعارف

يتزايد تأكيد المؤسسات العالمية للصحة العمومية على الشفافية في عملية اتخاذ القرار، وتوليد الشعور لدى الأقطار بملكيتها للمشاريع وللبرامج وللتمويل الذي يستند على الأداء والجدارة. وهذه المبادئ تعني استجابة مؤسسية للتحدِّيات في بناء الجسر لعبور الهوة التي تفصل بين المعارف والعمل، وباتخاذ القرارات بناءً على النتائج والبيِّنات والممارسات الواضحة العامة. وقد استخدما إطار عمل خاص بنظم المعارف لفحص كيف أثَّر الصندوق العالمي لمكافحة الإيدز والسل والملاريا على الطرق التي تستخدم فيها المعارف في جهود مكافحة هذه الأمراض. وقد قدَّمنا وصفاً للنظام الرسمي للمعارف الذي أُدرج ضمن القواعد والممارسات التي تطبَّق في عمليات الصندوق العالمي لمكافحة الإيدز والسل والملاريا، وقدَّمنا ثلاثة أمثلة لتوضيح مدى تعقيد نظام المعارف التي يتم تطبيقها، وهذه الأمثلة هي السياسة الخاصة بالإيدز والعدوى بفيروسه في الصين، وتطبيقات ناجحة في هاييتي، والاستجابات لتغيير البحوث في الملاريا.

وتوضح هذه الأمثلة أن الصندوق العالمي لمكافحة الإيدز والسل والملاريا قد أدى لظهور حوافز قوية لدى القائمين على التنفيذ على الصعيد المحلي لاتباع المعارف، إلا أن ذلك يقلل من التشجيع، إلى جانب وجود بنى قليلة العدد للاستفادة من الدروس القيِّمة التي يمكن الرجوع إليها عند تنفيذ المعارف المسندة بالبحوث أو أفضل الممارسات العالمية. ويمكن للصندوق العالمي لمكافحة الإيدز والسل والملاريا أن يؤدي دوراً مؤثراً في تنفيذ التعلُّم من التطبيق العملي وهو أمر تمس الحاجة إليه. واقترحنا اتباع ثلاث خطوات للبدء بهذه العملية: الاعتراف بمسؤولية مشتركة في التعلم في جميع جوانب نظام المعارف، وتحليل المعطيات الموجودة لدى الصندوق العالمي لمكافحة الإيدز والسل والملاريا وتنقيح المعطيات التي تجمع مع مرور الوقت، وتقديم الدعم للشركاء المتلقين والتقنيين لاستثمار الموارد في الربط بين التنفيذ وبين البحوث وأفضل الممارسات.

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