Untapped potential of health impact assessment

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Abstract | The World Health Organization has promoted health impact assessment (HIA) for over 20 years. At the 2012 United Nations Conference on Sustainable Development (Rio+20), HIA was discussed as a critical method for linking health to “green economy” and “institutional framework” strategies for sustainable development. In countries having a high human development index (HDI), HIA has been added to the overall assessment suite that typically includes potential environmental and social impacts, but it is rarely required as part of the environmental and social impact assessment for large development projects. When they are performed, project-driven HIAs are governed by a combination of project proponent and multilateral lender performance standards rather than host country requirements. Not surprisingly, in low-HDI countries HIA is missing from the programme and policy arena in the absence of an external project driver. Major drivers of global change (e.g. population growth and urbanization, growing pressure on natural resources and climate change) inordinately affect low- and medium-HDI countries; however, in such countries HIA is conspicuously absent. If the cloak of HIA invisibility is to be removed, it must be shown that HIA is useful and beneficial and, hence, an essential component of the 21st century’s sustainable development agenda. We analyse where and how HIA can become fully integrated into the impact assessment suite and argue that the impact of HIA must not remain obscure.

Introduction

At the first International Conference on Health Promotion, held in Ottawa in 1986, it was stated that “systematic assessment of the health impact of a rapidly changing environment – particularly in areas of technology, work, energy production and urbanization – is essential and must be followed by action to ensure positive benefit to the health of the public”.1 A quarter century later, this assertion is still true but health impact assessment (HIA) is seldom implemented, particularly in a developing country context. Nonetheless, the public and the private sector appreciate the value of evidence and health indicators for informed decision-making and health promotion, regardless of a given country’s human development index (HDI).2 Appropriately, the World Health Organization (WHO) has encouraged HIA as an important method for maximizing health promotion at the local, national and international levels.3 Lee et al., in the March 2007 issue of this journal, elaborated on the role of HIA in bridging the relationship between health and foreign policy by drawing the attention of decision-makers to relevant health issues and generating new evidence.4 Raising the profile of “health” is an important step towards holding governments, multilateral bodies and transnational corporations accountable for the potential health impacts of their policies and practices.5 More recently, WHO presented HIA as a key approach for linking health to “green economy” and “institutional framework” strategies designed to put health at the heart of the agenda of the 21st United Nations Conference on Sustainable Development (Rio+20).

We have performed HIA in a host of settings, particularly for projects in low-HDI countries, and we have observed that a concerted effort is needed to fully link HIA to the sustainable development agenda of the 21st century.6 Population growth and urbanization, growing pressure on natural resources and global climate change are rapidly moving to centre stage and HIA is often conspicuously absent. Here, we summarize current HIA practice and outline the potential of HIA to become a critical player with the major drivers of global change.

Health impact assessment

WHO defines HIA as “a combination of procedures, methods, and tools by which a policy, programme, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”.7 HIA is used to assess the likely effect of a policy, programme or project in a specific situation by drawing on the available evidence.2 HIA engages different stakeholders, such as project proponents and affected populations.4 It raises awareness among decision-makers that their actions can undermine health. Thus, HIA emphasizes the need for them to consider effects on health in all subsequent deliberations.8 Finally, HIA serves as a tool to highlight interdependencies between different types of impact assessment (environmental, social and human rights) and among key stakeholders, for the purpose of strengthening collaboration towards health promotion and development.9

Current practice

HIA has grown and diversified over the past two decades to the extent that a considerable spectrum of HIA practice now exists internationally:10 Several countries have established HIA practice as stand-alone processes (e.g. the United Kingdom of Great Britain and Northern Ireland), while others have inte-

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(Submitted: 1 September 2012 – Revised version received: 7 January 2013 – Accepted: 11 January 2013 – Published online: 31 January 2013)
granted the assessment of health impacts into existing environmental and social assessment frameworks (e.g. Brazil).11,12 At the national level, legislative approaches that support (e.g. United States of America) or require (e.g. Thailand) HIA are in place.13 Other countries currently rely on voluntary processes with various degrees of government support and resources.14,15 International financial institutions (e.g. Equator Principles Financial Institutions [EPFIs], the World Bank Group and the Asian Development Bank) are critical actors.16 The Performance Standards of the International Finance Corporation (IFC, a member of the World Bank Group), which include a community health standard, are internationally recognized and guide the impact assessment performance for large development projects.17 As part of loan covenants, IFC and EPFIs incorporate standards on social and environmental performance and reporting. Table 1 provides an overview of voluntary and regulatory approaches to HIA, stratified by geographical level (i.e. national or international), that entail different degrees of accountability. However, HIA practice still varies considerably at the subnational level, as exemplified by Australia.18 Hence, the only constant feature is change and local idiosyncrasies are inevitable.

Although HIA is now common practice in most countries with a high HDI, this is not the case in low- and medium-HDI countries (Fig. 1).19 Moreover, in contrast to high-HDI countries where HIA is mostly undertaken by the public sector, low-HDI countries conduct HIA primarily on large development projects.19 This is because in places where no national HIA policy is in place, only best practice principles linked to financing projects and internal company standards apply.19 Hence, from a quantitative and qualitative perspective, there is a divide in HIA practice between high- and low-HDI countries. This has important ramifications affecting current and future global challenges, including protecting health.

### Global challenges

When discussing global challenges, it is important to consider the different health contexts that exist in high- and low-HDI countries. For example, the burden of disease per capita in low-income countries is approximately three times higher than in high-income countries.20 Moreover, high-HDI countries are mainly burdened by non-communicable diseases (NCDs), whereas in many low-HDI countries communicable diseases are still predominant, although patterns are changing rapidly.21 Indeed, in the developing world, a rapid upsurge in the burden of NCDs, including diabetes, hypertension and obesity, is occurring, particularly in urban areas. This is leading to a double burden of diseases, with high infectious disease rates in rural settings and rising NCD rates in urban areas.22 There is also a considerable divide between high- and low-HDI countries in how the three major drivers of global change, described in the following sections, can affect health.

#### Population growth and urbanization

In October 2011, the world’s population reached 7 billion. It will have exceeded 9 billion by 2050, according to predictions.23 This projected population rise – from 5.7 billion in 2011 to 8.0 billion in 2050 – will primarily occur in developing countries. Population growth is accompanied by an ever-growing fraction of urban dwellers. In 2009, for the first time in human history, more than half of the world’s population lived in urban settings, and by 2050 the world’s urban population is expected to reach 6.3 billion – or nearly twice what it was in 2011, at 3.6 billion.24 This urban growth will occur mainly in low- and medium-HDI regions. In Africa, the urban population is likely to triple. This exponential urban growth will have profound implications for health: (i) urbanization will put major pressure on access to safe drinking water, sewerage systems and solid waste management, and this, in turn, will increase the transmission of diseases acquired through contact with contaminated water, soil and waste; (ii) the urban environment commonly results in changes in human behaviour that affect the burden of NCDs and road traffic-related injuries; (iii) high population density increases exposure to tuberculosis, measles, influenza and sexually transmitted infections; (iv) when cities grow, vector ecology is changed, and this alters existing vector-related diseases or introduces new ones; (v) more people will be exposed to air and noise pollution; and (vi) socioeconomic disparities and health inequalities may become accentuated in urban centres and this will result in overt social and political conflicts.25–27

#### Growing pressure on natural resources

A growing world population, coupled with economic growth, will put addi-
tional strains on existing mineral and energy resources, with many of the remaining large deposits located in remote tropical areas. It has been estimated that due to construction activities, technology and increased wealth – particularly in low- and medium-HDI countries – the overall volume of metal flowing into use in 2050 will be five to ten times higher than today.28 Similarly, the world’s marketed energy consumption is estimated to increase by 53% from 2008 to 2035, and the total energy demand will increase by more than 80% in the Asian Pacific region, Latin America and sub-Saharan Africa.29 Although the global energy supply will continue to be filled by fossil fuels, renewable energy sources and green economy strategies are gaining traction.30 Moreover, geographical and climatic conditions in tropical regions are favourable for the production of hydroelectric and solar power, as well as fertile land for biofuel production. The development and management of these natural resources will be key to social and economic development in most low- and medium-HDI countries. However, large development projects, if not properly managed, can undermine the health of local populations by depleting ecosystems and the services that these provide to mankind.31,32 Impact mitigation strategies should thus form an integral part of project developments in tropical and subtropical zones.33 The Nam Theun 2 hydroelectric project in the Lao People’s Democratic Republic is an important example of mitigation strategies implemented over time and with ongoing surveillance.34,35

**Global climate change**

Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional and global climate change. This is likely to affect the health of millions of people, particularly in low-HDI countries.36 Documented and anticipated health effects include, among others: (i) increasing levels of malnutrition and related disorders; (ii) alteration in the distribution of diseases transmitted by insect vectors and intermediate host snails; (iii) increasing burden of diarrhoeal and respiratory diseases; (iv) increased frequency of cardiorespiratory diseases due to higher concentrations

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**Fig. 1.** Countries, states and regions that (A) are actively promoting health impact assessment (HIA) through a policy, regulation or other means of endorsement and (B) have produced guidelines on HIA.
of critical pollutants such as ozone, and fine particulate matter (PM$_{2.5}$); and (v) higher mortality rates due to floods, storms, heat waves, droughts and fires. One commonly anticipated impact of climate change is population displacement. Indeed, by 2050, between 200 million and 1 billion people may be displaced because of climate change. Bronen presents an illuminating case study of climate-induced relocation and mitigation in the Arctic (Alaska), a place where HIA is currently undergoing considerable development. Variation in these outcomes is evident by geographic region and socio-economic status. Regions already experiencing the highest increase in diseases attributable to the rise in temperature over the past 30 years are inhabited by populations that bear the least responsibility for the greenhouse gas warming of the planet. This represents the largest health inequity of our time. A major challenge is to increase the effective capacity of most vulnerable countries to assess the potential impacts of global climate change in their specific contexts and to be able to translate the evidence into equitable public health programmes and policies. This requires comprehensive, yet flexible, transparent and integrated assessment methods that are able to: (i) systematically identify and quantify the many pathways through which climate change can affect health in different social and ecological contexts; (ii) cope with the uncertainties surrounding predictions on global warming; (iii) consider health equity, which is clearly part of the climate change challenge; and (iv) consider the full range of policy options for mitigating adverse health impacts as well as enhancing potential co-benefits from more upstream mitigation of greenhouse gas emissions.

### Tapping the potential

Low- and medium-HDI countries are particularly vulnerable to the major drivers of global change. Hence, existing policies and programmes should be modified and new ones developed in various sectors. As an integral part of the suite of impact assessments, HIA can contribute to raising awareness among decision-makers of the link between health and other factors so that they consider health effects in the planning of policies, programmes and projects (Fig. 2). This is supported by a broad set of examples of HIA in the context of urban planning, infrastructural development and policy development. In addition, for global climate change-related policy-making, the application of an HIA framework has been proposed. In practice, Spickett et al. employed HIA for addressing the potential health impacts of climate change in western Australia. They found that HIA, applied periodically, is an ideal tool for developing appropriate strategies for adapting to climate change. Such strategies can be used by the government for future decision-making. In western Africa, HIA, combined with vulnerability and adaptive capacity assessment methods, was conducted as part of an “EcoHealth” project for adaptation to climate change in riverine medium-sized towns. However, existing HIA practice falls short of what is required to meet the current and anticipated health challenges facing low- and medium-HDI countries. Yet, this leads to the question of how HIA practice can be promoted where it is most needed.

A natural point of entry for HIA in the context of global challenges is during the planning process for climate-induced resettlements and the implementation of recommended mitigation strategies. In the example of Alaska mentioned above, HIA is only implicit, but many of the steps that would comprise an HIA were embedded in the comprehensive community planning process. Indeed, the embedding of HIA in the overall process of climate-induced resettlement is what puts the key health issues in front of the policy-makers who directly influence the implementation of plans.

### Promoting health impact assessment

The following components were identified as cornerstones for the promotion and strengthening of HIA practice: (i) existing policy frameworks and procedures, including legislation and law; (ii) capacity-building mechanisms for HIA; (iii) institutional infrastructure; and (iv) intersectoral collaboration. With sustained efforts on these parameters, the Asian region has successfully promoted HIA practice over the past few years (Fig. 1). In the African region, however, all of these components are still largely non-existent at the national and regional levels. Consequently, the promotion of HIA practice is primarily dependent on voluntary corporate action and requirements for international financial institutions imposed by the EPFI and IFC.

Although these efforts are valuable contributions to the promotion of sustainable projects, they have major limitations. First, the performance standards put forth by the IFC and EPFIs only apply to those projects that depend on financing from these
institutions. This is critical in a competitive environment such as the extractive industry, in which adherence to sustainable principles may impose an economic handicap.\textsuperscript{14} Second, all of these efforts are based on current best practices, which are not a substitute for legal requirements. The example of the European Union shows that HIA not being mandatory seriously hinders the ability to fully tap its potential for promoting public health.\textsuperscript{12,16} Third, the provision of performance standards and guidance on HIA alone is not sufficient for the execution of HIA on the ground. Human capacities, as well as specific tools that are adapted to the context of a given proposal, are still needed.\textsuperscript{13,14} Fourth, the current international standards in practice focus heavily on natural resource extraction and management, which appears reasonable in light of the strong global demand for hydroelectric power, water and other natural resources.\textsuperscript{22,23} However, in view of predictions regarding population development and climate change, it will be crucially important that HIA practice go beyond the hydroelectric power and extractive industry private sector and become common practice also in the public sector. Moreover, even if international enforcement mechanisms prove effective, there is a worrying imbalance, since the current human and technical capacity for conducting HIA in low- and medium-HDI countries is not enough to cope with the demand for HIA practice created by international institutions, let alone the demand in the public sector at the national and regional levels.

The mechanisms in place for the promotion of HIA in low-HDI countries have limitations, as we have seen, and their success is jeopardized by the current lack of trained health impact assessors. To further promote HIA practice in the developing world in general, and in the African region in particular, there is a need for capacity-building. WHO is uniquely positioned to take the lead in this process, ideally in close collaboration with the HIA community (e.g. practitioners and academics). Central to the HIA training activity is the need to develop programmes in schools of public health with a major component on human resource development. This offers an opportunity to fill what is currently an important educational and human resource gap.

The World Health Organization’s role
With the establishment by WHO’s Western Pacific Regional Office of a thematic working group for HIA, a body of more than 1000 HIA practitioners was formed across the Asian region.\textsuperscript{45} Such a leading institution is what is missing for the African Region to make a start in the development and promotion of HIA capacities. Hence, we propose that WHO initiates the establishment of a regional competence centre in HIA as a priority for the African Region. In a first step, awareness of, and interest in, HIA as an approach for health promotion should be fostered. This will trigger demand for HIA at the national and regional levels and thus create a dynamic for strengthening HIA practice. However, true interest is more often built on practical examples than on theoretical frameworks. To date, the promotion of HIA in the developing world is constrained by the small number of available references of best practice that can be used as benchmarks for future HIA.\textsuperscript{44} For instance, WHO’s web site has very few examples of HIA deriving from low- and medium-HDI countries. Hence, the available evidence base for the value and practicability of HIA in tropical regions is small. Experience gained in HIA practice in high-income countries is rarely directly applicable to a low- or middle-income country context. As a result, WHO’s primary mission, to create interest in HIA, is hindered by considerable weaknesses in the evidence on the benefits, pitfalls and practicability of HIA in low- and medium-HDI countries.

Research and practice
According to a growing body of HIA guidance, interdisciplinary, multi-method approaches are required for appraising the broad range of policies, programmes and projects that can affect health.\textsuperscript{15} However, independent of whether the guidance documents were developed specifically for industrialized countries or for more global application, they were almost uniquely developed by people from high-HDI countries. Consequently, they are, to a great extent, built on evidence and experience gained in such countries. In view of the differences in context between high- and low-HDI countries, which are unambiguously reflected by the burden of disease and major risk factors, this is critical.\textsuperscript{21} For example, an HIA methodology that is based on the social determinants of health model has its limitations in the context of HIA for large development projects in a tropical country.\textsuperscript{46} On the other hand, the social determinants of health as a guiding framework for HIA may outgrow the strengths it has in high-HDI countries when applied in the context of urbanization or policy planning in low- and medium-HDI countries.\textsuperscript{25}

These examples highlight that the HIA community does not only have to scrutinize and amplify the methods at hand, but also become more clear about which methods make sense in what environment and for what purpose. However, ideally this should only be done on the ground and, importantly, in collaboration with local HIA practitioners. We therefore propose that the primary goal set by the HIA community be to advocate and expedite expertise in HIA that is integrated in governments, the private sector and academia in low- and medium-HDI countries. This requires the active promotion of partnership with local stakeholders by involving them in the entire HIA process. As recognized by WHO, the Rio+20 conference and resulting initiatives offer an opportunity to serve as a platform for turning this proposal into action. Collaboration and mutual learning will help strengthen the evidence base surrounding the value of HIA in low- and medium-HDI countries and also allow these countries to develop their own policy frameworks and procedures for HIA that are adapted to the structure and legislation of local ministries and to their environments and communities.

Conclusion
From a global perspective, HIA is generally still poorly recognized and practiced in most low- and middle-HDI countries. Recently, interest in HIA has increased in parts of the developing world, particularly in south-eastern Asia. Based on best practice principles, major extractive industry projects often have a strong impact assessment requirement. However, local interest and capacity for HIA in low- and middle-HDI countries are still weak. This is a serious constraint in light of the increasing demand for HIA in large development projects, notably stimulated by IFC and EPFIs’
The invisibility cloak must be removed so that health is seen and fully present in the unfolding 21st century sustainability agenda. HIA is a method that can be applied to a suite of issues, but this is not the same as recognizing that such issues must include a fully integrated health component. If the Rio+20 agenda is to genuinely benefit vulnerable populations, then “health” must be an equal participant and partner at the table.

Acknowledgements
We thank various colleagues from the WHO Regional Offices and elsewhere for their inputs on national and regional mechanism for the promotion and regulation of HIA. MSW is grateful to the Swiss Tropical and Public Health Institute for a post-doctoral fellowship.

Competing interests: The authors have pursued numerous health impact assessments, including work for the private sector, government agencies, development banks, and multinational organizations, and have served on expert committees for the WHO and other international organizations.

ملخص
الإمكانات غير المستغلة لتقييم الأثر الصحي (HIA) (تشجعت منظمة الصحة العالمية إجراء تقييم الأثر الصحي (HIA) على مدار ما يزيد عن 20 عاماً. وفي مؤتمر الأمم المتحدة للتنمية المستدامة لعام 2012 (ريو+20)، تم مناقشة تقييم الأثر الصحي كطريقة حاسمة لربط الصحة بالاقتصاد الأخضر والاستراتيجيات “ال إطار المؤسسي” للتنمية المستدامة. وفي البلدان ذات التنمية البشرية المرتفعة، تم إضافة تقييم الأثر الصحي إلى نظام التقييم الشامل الذي يشتمل عادة على الآثار البيئية والاجتماعية المحتملة، ولكن نادرًا ما يتم الاحتفاظ إليه كجزء من تقييم البيئة والاجتماعي لمشاريع التنمية الكبيرة. وعند تفتيش تقييمات الأثر الصحي الناجحة عن المشاريع توليفة من مؤيدي المشروعات ومعايير الأداء الخاصة بجهات الإقراض متعددة الأطراف، فإن مستوى الأثر الصحي في البلدان ذات دليل من المدهش، افتقاد تقييم الأثر الصحي في البلدان ذات دليل不高 من المدهش، افتقاد تقييم الأثر الصحي في البلدان ذات دليل

Resumen
Un potencial inexplorado de la evaluación de la impacto sanitario
L’Organisation mondiale de la Santé encourage l’évaluation de l’impact sanitaire (EIS) depuis plus de 20 ans. Lors de la Conférence des Nations Unies de 2012 sur le développement durable (Rio+20), l’EIS a été discutée comme une méthode essentielle pour lier la santé à l’«économie verte» et aux stratégies du «cadre institutionnel» pour le développement durable. Dans les pays présentant un indice de développement humain élevé (IDH), l’EIS a été ajoutée à la suite de l’évaluation globale qui inclut généralement les impacts environnementaux et sociaux, mais qui est rarement nécessaire dans le cadre de l’évaluation de l’impact environnemental et social des grands projets de développement. Quand elles sont effectuées, les EIS axées sur les projets sont régies par une combinaison de normes de performances multilatérales du prêteur et du promoteur du projet, plutôt que par les exigences du pays d’accueil. Il n’est pas surprenant de constater que, dans les pays à
Policy & practice
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Resumen
El potencial no explotado de la evaluación del impacto sanitario

La Organización Mundial de la Salud ha promovido la evaluación del impacto sanitario (EIS) a lo largo de más de 20 años. En la Conferencia de las Naciones Unidas sobre el Desarrollo Sostenible (Río+20) celebrada en el año 2012, se debatió sobre la EIS como método fundamental para vincular la salud con estrategias para promover una «economía ecológica» y un «marco institucional» para el desarrollo sostenible. En la Conferencia de Río+20, la EIS fue agregada a la evaluación global que normalmente incluye los impactos ambientales y sociales, pero raramente se requiere como parte de la evaluación del impacto medioambiental y social de proyectos de desarrollo de grandes dimensiones. Cuando estos se llevan a cabo, las EIS impulsadas por proyectos se rigen más por una combinación de los estándares del defensor del proyecto y la función multilateral del prestamista que por los requerimientos del país anfitrión. No sorprende que, en países con un IDH bajo, la EIS no se incluya en los programas y en las estrategias debido a la ausencia de un conductor externo de los proyectos. Los principales factores del cambio global (por ejemplo, el crecimiento demográfico en la urbanización, la presión creciente sobre los recursos naturales y el cambio climático) afectan excesivamente a los países con IDH bajos y medios; sin embargo, en esos países la EIS brilla por su ausencia. Si se desea eliminar la capa de invisibilidad de la EIS, es necesario demostrar que esta última es útil y beneficiosa y, por tanto, un punto esencial de la agenda para el desarrollo sostenible del siglo XXI. Analizamos dónde y cómo podría integrarse plenamente la EIS dentro de las evaluaciones de impactos y opinamos que el impacto de la EIS no debe permanecer oculto.


