

Complexity and Institutional Diversity in Global Health Governance: Implications for Asia

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Introduction

Asian policy-makers are in the process of redefining their relationship to a system of global health governance (GHG) shaped principally by actors outside of the region, most notably Western governments. The way in which Asian policy-makers define this relationship--by choosing lukewarm or wholehearted support, passive or active resistance, pressure for change from within or the creation of alternative institutions--will be a key determinant of how GHG will evolve over the next decades. Whatever their choices, they will have a major impact on human health and well-being in Asia and beyond.

Asian policy-makers will no doubt focus on the *content* of global health policies. This includes key questions such as: Which rules should be supported, accepted, enforced and complied with? Which kinds of resources should be transferred and for what purposes? Which ideas should be promoted, contested, accepted or rejected? These questions are crucial to three key dimensions of global governance: regulative (development, negotiation and enforcement of rules), allocative (extraction, transfer and distribution of material resources), and discursive (generation and diffusion of ideas).

But Asian policy-makers also have to consider what can be called the *form* of GHG. This is more about who the actors are than what they do, and especially about the patterns of interaction among those actors. Clearly, content and form are intimately related; actors enter into specific relationships because they want to pursue specific goals and in turn the relationships they have influences their goals and what they can

expect to achieve. However, the distinction between content and form can be useful to gauge the role of certain aspects of the problem while keeping others in the background.

This chapter is concerned with a specific *formal* characteristic of governance: its *complexity*. Complexity is an ambiguous term and yet is it frequently used by practitioners as well as observers of global governance. For instance, after noting that 40 bilateral donors, 90 global health initiatives, 26 UN agencies and 20 global and regional funds work in global health, the UK Department of International Development deplored that the system was ‘over-complex’ (cited by McCoy et al 2009: 414). Policy pronouncements on governance complexity seem to suggest that it can be an obstacle to effective policy-making and at the same time that it can be reduced or managed through appropriate institutional design. Calls for institutional reforms are often framed in terms of giving GHG an overarching “architecture” that it currently lacks (see Fidler 2007 for a discussion of the metaphor, and Charnoz and Severino 2008 for a more general discussion of these themes). Asian governments thus face the following questions: assuming that governance complexity is not an inescapable “fact of nature”, how should they relate to it? Considering their needs, is the current system of GHG too complex, not complex enough, or “just right”? Would a different kind of complexity be more appropriate to the interests and values of Asian countries? How much leeway do they have in promoting changes in the extent and form of governance complexity?

Thinking about these issues raises a range of difficult questions. Analysts of GHG can help placing policy-making on more solid grounds by tackling at least three important research challenges.

First, how can we subject to systematic scrutiny the widespread perception that GHG is becoming more complex? How can complexity be defined and operationalized in such a way as to provide a precision tool for qualitative, quantitative, comparative and historical research?

Second, what are the consequences of complexity? To what extent does more complexity--more precisely, specific forms of complexity--have a positive or negative impact on outcomes, such as infant mortality, overall mortality rates, immunizations, disability-adjusted life expectancy, government spending on health, measures of

health inequality, etc.? Are certain forms of complexity more beneficial or harmful than others, and is their impact linear or non-linear? To be sure, policy-makers are not interested only in improving health outcomes when they assess current and possible GHG structures, since a whole range of political, economic, and cultural factors play a role as well. But researchers should investigate impacts on health outcomes under the assumption that they are, and will be, important for Asian policy-makers.

Third, to what extent can the level and form of complexity be modified by deliberate policy choices? Answering this question requires a broader analysis of the *causes* of complexity and an assessment of the relative importance of structural and policy-controlled causes in explaining existing levels and forms of governance complexity. The analysis should also assess to what extent both state and non-state actors are likely to resist attempts to “rationalize, centralize, and harmonize” their involvement in global health and limit their freedom of action (Fidler 2007), or even to promote further governance complexity in order to better assert their values and interests (Drezner 2009; Benvenisti and Downs 2007).

The next section addresses the first task, while the third section of this chapter considers the consequences of complexity. The empirical material presented here reflects, to a large extent, what Western countries are doing in the global health domain, since they bear the primary responsibility for the current levels and forms of governance complexity, and the response of Asian governments facing this *status quo*. The chapter will also refer to examples from Asian countries, to the extent that they provide some indication on how their policies are affecting governance complexity in global health.

Defining and operationalizing complexity in GHG

According to a general definition, complex systems are “made up of a large number of parts that interact in a nonsimple way”, in the sense that, “given the properties of the parts and the laws of their interaction, it is not a trivial matter to infer the properties of the whole” (Simon 1962: 468). In global governance, complexity can be seen a function of various elements, including (a) the number of actors who “produce” governance; (b) the degree of diversity in their properties; and (c) the degree of diversity in their regulative, discursive and allocative relationships. Complexity is

thus related to what has been called the “unstructured plurality” of global health (Fidler, 2007).

For analytical purposes, it seems useful to operationalize complexity in GHG in relation to the three dimensions mentioned in the introduction, allocative, regulative and ideational, even though in actual fact most governance relationships combine the three dimensions in more or less complex ways. For each of these dimensions, I will first present some concepts and then some empirical illustrations.

With regard to the allocative dimension, in the analysis of development aid for health it is usual to refer to “donors” and “recipients”, and those terms are adopted here as a shorthand. McCoy, Chand, and Sridhar (2009) provide a more rigorous conceptualization by distinguishing between the actors “providing” funds for global health, actors “managing” those funds, and actors “spending” them. They also note that several actors perform all three functions simultaneously. Governance complexity can thus be seen as having a number of components: (1) the number of donors that provide aid for health; (2) the number of collaborative initiatives among donors for the management of those funds, whatever institutional form they make take; (3) the number of organizations that spend funds for health. Another cluster of components refers to the institutional diversity of providers, managers and spenders: (4) the institutional diversity between donors. Obviously the distinction between governments and non-governmental actors is important, but there are also important differences among governments, and among non-governmental actors. With regard to the former, differences that have a direct impact on governance complexity is the number of veto points in the political system (democratic countries tend to have more) and more specifically the degree of internal fragmentation and competition among the government departments that are involved more directly in the regulative, discursive and allocative aspects of GHG. Among non-governmental actors, member-based non-governmental organizations (NGOs) with extensive representative structures are likely to behave differently than more hierarchical foundations, or companies. (5) The institutional diversity among collaborative initiatives among donors. These can range from traditional multilateral organizations to more informal “private-public partnerships”. Relevant diversity can occur across many institutional dimensions, which is why researchers proposed a number of different typologies (e.g. Koenig-Archibugi 2002).

Further components of governance complexity concern the relationship between donors and recipients. Development aid specialists have introduced the concept of aid proliferation to indicate the degree to which a donor distributes aid widely among many recipients, and the concept of aid fragmentation to indicate the degree to which a recipient obtains aid from a wide range of sources.

An attempt to define and operationalize complexity in the allocative dimension of GHG would be incomplete if it did not include mechanisms through which policy-makers attempt to reduce or manage this complexity. Complexity could be reduced through specialization, which entails donors voluntarily concentrating their aid on a limited number of recipients, or a limited number of policy sectors. Collaborative health initiatives can specialize as well, for instance, on specific diseases. But this form of specialization does not necessarily reduce complexity since this typically entails a larger number of separate health initiatives.

Complexity can be managed through coordination, either among donors or collaborative health initiatives. An increase of the proportion of aid that is channelled through multilateral organizations (as opposed to provided bilaterally) is likely to reduce complexity, although this is not necessarily the case if the multilateralization of aid is accompanied by a proliferation of multilateral initiatives.

If these components are used as indicators to assess to current arrangements for development aid for health, what can be said about the current situation and historical trends? It should be noted that systematic knowledge about global health funding is hampered by serious data collection problems, but a number of studies have attempted to present an overall picture (Ravishankar, 2009; McCoy, et al., 2009; Lu, et al., 2010)

There is much discussion at present on the significance of so-called “emerging donors”, i.e., countries that did not provide significant amounts of development aid until recently and, in some cases, were or still are recipients of development aid, such as Brazil, China, India, and Thailand (Woods, 2008). The debate on emerging donors tends to focus on the alleged specificities of their policies (for instance with regard to targeted sectors, the mix of grants and loans, conditionality, tied aid, etc.), although some worry about their (lack of) “coordination” with other donors. In contrast to the established donors that are members of the Organisation for Economic Co-operation

and Development (OECD) Development Assistance Committee (DAC), there are significant gaps in the publicly available information on the magnitude and sectoral distribution of aid provided by emerging donors. Kharas (2009) estimates that in recent years new bilateral donors provided about \$10 billion annually, while DAC members provided about \$73 billion bilaterally (see Figure 1).

Information about the amount of *health* aid provided by non-DAC donors is still scarce, although other chapters in this volume provide valuable information on this issue. Further work is needed to ascertain the extent to which the new donors have made a noticeable difference in the health sector. The available evidence suggests that emerging donors have concentrated their resources on non-social sectors, and specifically on infrastructure projects. For instance, a study of the involvement of four emerging Asian donors (China, India, South Korea and Thailand) in Cambodia shows that they mainly financed infrastructure using concessional tied loans (Sato et al., 2010). Wang et al. (this volume) report that China has undertaken only 33 health aid projects providing health equipment and medicine in the 2000s, three in the 1990s and two in the 1980s, although the number of Chinese Medical Teams deployed in poor countries is significant and China also provided training to foreign health workers and contributed to the construction of health facilities abroad.

Another component of complexity mentioned above refers to the fact that state donors (and recipients) are not “unitary actors” but governments composed of departments with different, sometimes competing, agendas. It has been reported that in the United States, 12 departments, 25 different agencies and nearly 60 government offices are involved in foreign assistance programmes, and that the main agency, USAID, oversees only 45 per cent of U.S. foreign aid (Frot and Santiso 2010). Pilcavage (in this volume) notes that Japan’s Official Development Assistance (ODA) is administered among the Cabinet Office and 12 ministries and agencies, with no independent international development agency in charge. While the U.S. and Japanese governments may display an unusually high level of fragmentation, this issue is likely to affect emerging donors also. Wang et al. (this volume) note that, in addition to the Ministry of Commerce and its Department of Aid to Foreign Countries and Department of International Trade & Economic Affairs, a further 22 ministries and commissions under the State Council participate in Chinese foreign aid programmes.

Studies on global health financing stress the increasing importance of non-governmental sources. As estimated by Kharas (2009--see Figure 1 above), private sources account for almost as much foreign aid as bilateral DAC governmental aid, and significantly more than multilateral aid, across all sectors. For the health sector, McCoy et al. (2009) estimate that by 2006 the Gates Foundation had become a bigger international health donor than all governments, except the United States and the United Kingdom.

While the majority of official development assistance for health is channelled bilaterally, about three quarters for DAC countries, more for non-DAC countries, according to McCoy et al. (2009), the number of multilateral channels has increased. The increase in number has been accompanied by an increase in the institutional diversity of aid managing institutions, which now range from traditional multilateral organizations, such as the World Bank and the WHO (which are themselves organized very differently), to hybrid but formalized agencies, such as the Global Fund, to less formal private-public partnerships that are often disease-specific. McCoy et al. (2009) note that some public-private partnerships are primarily funding agencies while the majority of them are implementing agencies, although the complexity of allocative arrangements is further increased by the fact that some of the latter also transfer resources to other actors.

These trends have produced a significant increase in the fragmentation of development aid. Over the past forty years, projects have increased dramatically in number and become smaller in size. Since countries no longer target their aid to a small number of countries of post-colonial strategic or economic interest, recipients tend to obtain aid from a large number of donors, some of which only provide a small percentage of total aid. In 1960, the average OECD donor disbursed aid each year to an average of 20 countries, while in 2006 it did so to more than 100. Aid budgets did not rise at the same rate as the number of recipients, resulting in increasing levels of fragmentation (Frot and Santiso, 2010). In 2002, 25 official bilateral donors, 19 multilateral donors, and about 350 international NGOs were operating in Vietnam, and they collectively accounted for over 8,000 projects (Acharya et al., 2006). Globally, over the past forty years projects have increased dramatically in number and become smaller in size.

Fragmentation is associated with the proliferation of monitoring and accountability structures. For instance, Cambodia reportedly has 121 parallel project implementation units, and 358 donor missions, reviews and studies are said to have taken place in a single year (Sato et al., 2010). The DAC suggests that fragmentation constitutes a serious problem when 15 or more donors combined provide just 10 per cent of Country Programmable Aid, and it published the information shown in Figure 2 to highlight the 32 countries falling into this category.

In general, donors from Asia do not appear to contribute to fragmentation more than donors from other regions, but there are significant differences among them. In 2001-2008, DAC-member Japan gave aid to 143 countries, and 50.6 per cent of its aid went to its top 5 recipients.¹ Korea, not a DAC member until 2009, gave aid to 160 countries, and 45.7 per cent of its aid went to its top 5 recipients. These levels of proliferation are broadly similar to those of Western donors, such as the United States (143 recipients, 44 per cent to top 5) or Germany (143 recipients, 34.3 per cent to top 5). By contrast, non-DAC-member Thailand gave aid only to 14 countries and almost all of it (95.2 per cent) was concentrated on the top 5 recipients (Dreher et al. 2010). Comparable measures are not available for China and India, but Guntupalli (this volume) shows that India's foreign aid is more highly concentrated. In 2007-2008 the bulk of India's foreign aid went to four countries (Bhutan, Afghanistan, Bangladesh and Nepal).

Fragmentation across all aid sectors should be distinguished from fragmentation in a specific aid sector, such as health. For illustrative purposes, Table 1 shows the fragmentation of health aid in Vietnam in comparison to total aid and aid for economic infrastructure projects. Health aid is less fragmented than total aid but more fragmented than infrastructure aid. This pattern is a typical one because projects in health and other social sectors tend to be smaller on average than non-social projects. Frot and Santiso (2010) calculated that, globally in 2007, recipient countries had, on average, ten donors in the health sector, of which five provided collectively less than 10 per cent of total health aid. This is less fragmentation than in the education sector, but significantly higher than in economic and productive sectors (in transport and

¹ Pilcavage (in this volume) notes that the long-term trend in Japanese foreign aid consisted in shifting from a focus on Asia towards a greater diversification of recipients: the Asian region received 98.2 per cent of Japanese ODA in 1970 and 49.6 per cent in 1996.

communications, for instance, the average number of donors is only five, of which three provide collectively less than 10 per cent of aid for that sector). This also indicates that emerging donors, who appear to prefer infrastructure projects, contribute less to fragmentation than established donors.

Table 1 above illustrates the potential role of sectoral specialization in reducing fragmentation. Austria is Vietnam's smallest donor overall (0.04 per cent of all aid) but it is the third-largest donor in the health sector (9.3 per cent). Specialization can be "unilateral" or the outcome of explicit coordination. Over the past decade, donors and recipients have repeatedly committed themselves to reduce fragmentation and increase coordination, most notably in the Paris Declaration of 2005 and in the Accra Agenda for Action in 2008. But proliferation and fragmentation continue to be high despite such public commitments (Aldasoro et al. 2009). Woods (2008: 1218) remarks that

"The paradox about coordination is that established donors have created so many institutions to enable better coordination among themselves, and yet have simultaneously sidelined them." She also notes that "Multilateralism in the international development assistance regime is weakening; and there are very few incentives in the existing governance structure of multilateralism to give emerging donors an incentive to engage." (Woods 2008: 1221).

At a minimum, emerging donors would need to be reassured that they would not be put under pressure to comply with principles, such as specialization, when such principles are not actually implemented by established donors themselves. Beyond this, they are likely to expect some "special and differential treatment" that takes into account their own development needs. Not surprisingly, Sato et al. (2010) show that emerging donors display significant diversity with regard to coordination goals: Thailand and Korea, for instance, declare acceptance of DAC principles, whereas China and India do not actively seek international coordination.ⁱ

The cumulative effect of the proliferation of bilateral, multilateral and hybrid donors produces what many consider a very high level of complexity at all levels of governance. Figure 3 takes a global perspective and summarizes the flows of health funding in 2006 according to the estimates by McCoy et al. (2009). Figure 4 takes a country-level and disease-specific perspective and illustrates the relationships

between international and national actors involved in addressing HIV/AIDS in Tanzania.

The second dimension of global governance, the regulative aspect, can also be broken down into a number of components. A first component is the number of actors who take an *active* part in the negotiation of international rules, notably international treaties. A second component is the diversity of those actors, and specifically the role of non-governmental actors in setting the agenda, formulating and approving rules, and monitoring compliance. A third component is the number of treaties and other legal agreements that have been negotiated, ratified, and need to be monitored. A fourth component is the number of rules negotiated between non-state actors that create legal or quasi-legal obligations. A fifth component is the extent to which the provisions of one international treaty or agreement overlap and possibly clash with the provisions of other agreements. This issue has been examined by the legal literature on norm collision in international law (e.g. Fischer-Lescano and Teubner 2006; Benvenisti and Downs 2007) Political scientists are increasingly interested in the issue of international regime complexity and fragmentation (e.g. Benvenisti and Downs, 2007; Alter and Meunier, 2009; Biermann et al. 2009; Drezner 2009). An important aspect of this issue is whether the overlapping/collision of rules crosses policy domains as they are traditionally conceived, such as health and trade (Lee et al., 2009). Cross-sectoral overlapping or collision increases complexity because it promotes the interaction of policy-makers with different backgrounds, goals, cognitive orientations and acquaintance with different policy networks. A sixth component is closely related to the fifth: the presence or absence of a legal framework that can claim some sort of priority over the others and that can “reduce complexity” by providing authoritative solutions to possible conflicts between rule systems, or at least a “focal point” that helps negotiate a solution.

What is the situation in relation to health governance? In comparison to other policy sectors, there are few international agreements that create legally binding obligations for states. In the environmental domain, for instance, there are over 1000 legally binding multilateral agreements, 1500 bilateral agreements, and 250 agreements between governments and international organizations or non-state actors (as opposed to other governments) (Mitchell 2002-2010). Such a dense system of “hard law” is lacking in the global health domain.

Other chapters in this volume indicate that treaty creation processes in the health domain vary considerably in the degree of diversity of their participants. Lee and Kao (this volume) show that the WHO's Tobacco Free Initiative facilitated the access by civil society organizations to the negotiation process, and non-state actors played a key role in all stages of the process leading to the Framework Convention on Tobacco Control. Among Asian countries, Thailand was a particularly vocal supporter both of stringent tobacco control policies and of the involvement of NGOs without links to the tobacco industry. Kamradt-Scott et al. (this volume) show not only that non-state actors played a much lesser role in the negotiation of the International Health Regulations of 2005, but also that governments exercised a tight control over their participation, by voting to exclude all non-governmental organizations from the November 2004 meeting of the Intergovernmental Working Group (IGWG) and then accepting a limited role for those organizations in the IGWG's February 2005 meetings.

Finally, the third dimension of GHG--discursive-- is more difficult to operationalize, because patterns of ideational influence are more diffuse, ambiguous, and volatile than flows of material resources or formal rules. The field is characterized by broad discursive formations, for instance the biomedical model, social medicine, economism and the "health security" paradigm in the field of global health (Lee, 2009). As noted above, this chapter is not concerned with the content of the ideas that are transmitted globally, but with the complexity of interaction patterns that constitute the discursive dimensions of GHG.

The key components of this dimension relate to the key sites of production and the key channels of transmission of global discourses, which include knowledge, ideas and norms. The global health research governance analysed by Bennett et al. (this volume) is an important part of this discursive dimension. A very broad understanding of governance includes the validation, filtering and transmission of knowledge, as well as its production. If this broad understanding is accepted, then the number of institutions that produce health research, and the number of links between them in global research networks, are key components of governance complexity. Another component is the number of formal collaborative initiatives among research institutions, which sometimes coincide with the "partnerships" providing funding discussed earlier. Channels of transmission are probably more difficult to pin down

with any degree of precision, as they include diffuse phenomena such as the media, networks of researchers, and the transnational migration of professionals, such as doctors and nurses. But other channels are more amenable to systematic analysis, notably the number of intergovernmental organizations and the number of non-governmental organizations that are active in global health--or, more precisely, the total number of memberships in intergovernmental organizations (IGOs) and international non-governmental organizations (INGOs) across all countries and the number of links between countries that are created by shared IGO and INGO memberships. IGOs and INGOs are not just channels for the transmission of information, but often also the context of deeper socialization processes that modify identities and interests. Finally, a determinant of complexity is the degree to which one or a few organizations play a central role in the validation, selection, diffusion, and promotion of health information, ideas and norms.

Bennett et al. (this volume) note that currently only 5 per cent of global scientists work in non-OECD countries. But they also note that China and India are seeking to develop globally competitive health research capabilities, particularly in the area of biotechnology. Szlezák and Moon (this volume) note that the Chinese government aims to attract 2 per cent of global pharmaceutical research and development spending, and has promoted partnership between multinational companies and Chinese research centres. Pharmaceutical companies such as AstraZeneca, Novartis, GlaxoSmithKline and Sanofi-Aventis have established research and development structures in India, China and Singapore. While the dispersion of research activities beyond the OECD is still in a nascent stage, the dynamics of pharmaceutical research have changed as a result of the involvement of actors besides companies and governments. Civil society organizations have placed the question of global access to medicines on the policy agenda and large foundations (specifically the Gates Foundation) have channelled new resources into research relevant to the concerns of low and medium income countries. For instance, Bennett et al. (this volume) report that the Gates Foundation was the world's second-biggest funder of research and development for malaria from 1999-2006. As Szlezák and Moon (this volume) note, many new initiatives for the development of drugs or technologies take the form of public-private partnerships, such as the Medicines for Malaria Venture (MMV), the Drugs for Neglected Diseases Initiative (DNDI), the Global Alliance for TB drug

development, and the International Aids Vaccine Initiative (IAVI). They conclude that “the era is long past in which states or intergovernmental organizations are the sole, or even leading, actors in addressing the problem of how to produce accessible innovations that address global health needs.”

The complexity created by the proliferation of collaborative research initiatives is not being reduced or managed through a more or less centralized governance structure. According to the policy makers interviewed by Bennett et al. (this volume), “there had never been a concerted effort to establish a global governance structure for health research. Instead the existing arrangements had developed in an *ad hoc* fashion, which in turn had led to extremely fragmented arrangements.”

Kamradt-Scott and Yoon (this volume) assessed the degree of networking among Asian governments on public health issues in general and pandemic influenza preparedness in particular, and found that most Asian governments seem more interested in building national capabilities than investing in regional initiatives. They also note that the approach chosen in the Asian region may not be distinctive in global comparison.

Institutionalized communication among governments is obviously not the only channel for the diffusion of ideas and strategies to address public health issues. INGOs may be important mechanisms of discursive interdependence across borders. According to the Yearbook of International Organizations, over 2600 INGOs were primarily concerned with health, out of about 55,000 INGOs in existence in 1999. While their role is likely to be very substantial in a number of health domains, this is not necessarily the case in others. For instance, Kamradt-Scott and Yoon (this volume) find little evidence that they played a significant role in pandemic influenza preparation, preparedness and response matters in Asia, apart from isolated exceptions such as the faith-based Muhammadiyah organization in Indonesia.

Effects of governance complexity on health policies and health outcomes

What are the consequences of complexity for the ability of GHG to improve health outcomes and promote substantive health policies that are perceived to be conducive to better outcomes? More precisely, which components of complexity have what effect on health outcomes and health policy? These questions raise a number of

difficult methodological questions, not least the choice of terms of comparison. Governance complexity might be reduced by excluding certain actors from policy making, by increasing coordination among existing actors and by concentrating power in one or few dominant actors; for instance, Sridhar, Khagram and Pang (2008-2009) discuss a number of proposals for increasing the coherence of GHG. There is no reason to expect that these potential changes would have similar effects on health outcomes.

It is not obvious that complexity per se should have either desirable or undesirable consequences. Many analysts point at harmful consequences. For instance, McCoy, Chand and Sridhar (2009: 7) argue that, “While the increase in number of global health actors may positively reflect the greater amount of resources and attention for global health, it may lead to an uncoordinated and competitive environment that is problematic for governments and CSOs in [low and middle-income countries]. Many transaction costs come attached to the proliferation of global health actors and initiatives and to the convoluted channels of financing.” (See Sridhar, 2010 for an elaboration). Several policy-makers, such as UK’s DfID (see the introduction to this chapter), tend to agree. Initiatives such as the Sector-Wide Approach (SWAp), the Paris Declaration on Aid Effectiveness, the Accra Agenda for Action, and the International Health Partnership (IHP+) are reactions to the perceived costs of uncoordinated action. Also within the UN there is concern about the proliferation of health initiatives originating from different UN agencies and programmes, such as UNAIDS, UNICEF, WHO, UNFPA, and the UNDP (UN 2006). But the balance of costs and benefits of complexity, and the discrimination of fruitful and harmful forms of complexity, remains a matter of contention.

At the most abstract level, the benefits and costs of complexity can be related to the distinction between “exploration” and “exploitation”. “Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution” (March, 1991: 71). While every functioning system must exploit existing certainties as well as exploring new possibilities, often there is trade-off between the two orientations. High complexity, in the sense elaborated in the previous section, provides many opportunities for exploration, but possibly at the cost of making established policies

less efficient. For instance, there is no simple relationship between the degree of competition among institutions and actors promoted by international regime complexity on the one hand and negative or positive effect on efficiency on the other hand (Alter and Meunier, 2009: 19; Biermann et al., 2009).

Various strands of research offer insights on the effects of global governance complexity on outcomes of interest, and the following provides a very selective overview of findings.

Starting with the allocative dimension of GHG, there is some debate on whether development aid for health has any significant impact on health outcomes. Several studies have examined statistically the effects of health-sector specific ODA and reached diverging conclusions. Wolf (2007) finds that the share of ODA that is provided for health has a positive impact on health outcomes. Similarly, Mishra and Newhouse (2007) find that official health aid decreases infant mortality and increases domestic health spending per capita. By contrast, Williamson (2008) examines five health indicators--infant mortality, life expectancy, death rate, and immunizations (diphtheria/pertussis/tetanus and measles)--and finds that health foreign aid has no effect on them. It should be noted that these studies do not provide direct insights on the consequences of health funding complexity--for instance, they focus on ODA and do not consider other channels of health funding. A partial exception is the recent study by Lu et al. (2010), which found that development assistance for health to governments has a significant negative effect on domestic government spending on health, whereas development assistance for health to the non-governmental sector had a significant positive effect on domestic government health spending (see also the comments by Ooms, et al., 2010 and Sridhar and Woods, 2010).

A strand of research that is more directly relevant to the issue of complexity focuses on aid proliferation and fragmentation. Acharya et al. (2006) hypothesize that the proliferation of aid channels increases direct transactions costs (absorption of the scarce energies and attentions of relatively senior government staff) and indirect transactions costs (dysfunctional bureaucratic and political behaviour). This decreases aid efficiency. On the other hand, Frot and Santiso (2010) argue that too little fragmentation may also be problematic, noting that "Ideally one would like to have some competition, to not have developing countries depending on a single country for aid, but not so much competition that the costs of administering all the partnerships

become unmanageable.” Similarly, on the basis of experiences in Cambodia, Sato et al. (2010) note that “a greater number of donors with diverse institutional characteristics (in their values, strategies and modalities) encourages healthy donor competition and thus may contribute to the development plan of the Cambodian government.”

Some cross-national statistical studies found that fragmentation has a negative impact on economic growth (Kimura et al., 2007, Djankov et al., 2009, Annen and Kosempel, 2009) and bureaucratic quality (Knack and Rahman, 2007), but these studies do not specifically focus on health aid or health impacts.

An important study of the impact of NGO aid on development outcomes is by Masud and Yontcheva (2005), which is noteworthy also because it specifically includes impacts on health outcomes. Masud and Yontcheva only examine projects proposed by European NGOs and co-financed by the European Union between 1990 and 2001, and find that NGO aid reduces infant mortality in recipient countries. On the other hand, the same authors find no significant impact of total bilateral ODA on infant mortality, nor any evidence that either total bilateral aid or NGO aid has an impact on the share of spending on health care in total expenditure.

Research into the regulative dimension of global governance has equally yielded mixed findings with regard to the effects of complexity. Alter and Meunier (2009: 14) usefully summarize the current state of knowledge as follows:

“Sometimes complexity empowers powerful state actors, while at other times NGOs and weaker actors gain from the overlap of institutions and rules. Sometimes overlap introduces positive feedback effects that enhance cooperation and the effectiveness of any one cooperative regime. Sometimes, however, complexity introduces unhelpful competition across actors, inefficiencies, and transaction costs that end up compromising the objectives of international cooperation and international governance.”

An assessment of which of these effects tends to prevail in GHG is hindered by the scarcity of legally binding international treaties on health matters. The IHR 2005 and the FCTC entered into force only in recent years and evaluations of their effectiveness are still tentative. Lee and Kao (this volume) cite a Chinese official according to whom the FCTC process galvanised a nascent tobacco control movement in China

and helped it gain political impetus. They also note how support for a strong FCTC by the Indian government interacted with the promotion of strong domestic legislation in a mutually reinforcing way. On the other hand, the experience with pre-2005 versions of the IHR indicates that the status of binding international law does not guarantee an actual effect. Kamradt-Scott et al. (this volume) found substantial differences among Asian countries in the level of attention and commitment devoted to the implementation of the IHR 2005.

As stressed in the previous section, the discursive dimension is a very important aspect of GHG (Lee, 2009). While a number of scholars have pointed at the deleterious effect of certain *contents*, notably neoliberal discourses on global health (e.g. Kay and Williams 2009), we know much less on whether the multiplication of actors propagating global health discourses is good or bad for health. Research has shown that territorial contiguity helps policy innovations to spread of health from country to country (Shearer et al. 2010), but less is known about the relative importance of different vectors--bilateral government contacts, interaction within IGOs, transnational networking among NGOs, the mobility of health professionals, etc. It can be hypothesised that national and local policy-makers and officials who interact with a larger number of transnational actors (representatives of NGOs, IGOs and foreign donors) are more likely to select and implement more effective health policies, in line with the alleged benefits of a vibrant “marketplace of ideas”. But we do not have yet the evidence necessary for a rigorous assessment of this hypothesis, or the opposite hypothesis.

This gap in knowledge can be addressed by a research agenda that exploits the potential of innovative statistical approaches, notably social network analysis and spatial econometrics. These techniques are particularly suited to capture the complex processes of interdependent policy making that characterizes a diffuse governance complex such as global health. From the perspective on individual governance units, researchers can try to establish whether the degree of network centrality and embeddedness of territorial units affects health outcomes within those units.ⁱⁱ Two networks deserve special attention: first, the network of intergovernmental organizations concerned with health or with related social issues; second, the network of transnationally active non-governmental organizations concerned with health issues. Moreover, researchers could establish whether the health policies of

governments (specifically health spending) are influenced by what other governments do, and which governments are particularly influential: hegemonic centres, or “peer groups” identified on the basis of frequent interactions within the same IGOs, or linked by the same INGOs. The outcome of such investigations would provide important new information on whether and how involvement of actors in global discursive networks affects their ability to address health challenges.

Concluding remarks

This chapter has discussed a number of concepts that can help policy-makers in Asia and elsewhere to think systematically about the nature of governance complexity in global health, and ultimately to design more effective global health policies--e.g. aid proliferation and fragmentation, and network centrality and embeddedness. Social researchers have also produced knowledge on the consequences of those complexity indicators, for instance, by highlighting the negative impact of aid fragmentation on economic growth, or the positive impact of non-state actors on outcomes such as government health budgets, funding for specific diseases, and the creation of international law. However, there are still major gaps in our knowledge of the consequences of governance complexity on health outcomes and related goals. What is missing is not only the analysis of specific aspects of the problem--for instance, cross-national statistical studies of the relationship between fragmentation of *health aid* and *health* outcomes, or of the role of NGOs in the diffusion of immunization policies--but also a comprehensive examination of how all these relationships *interact* to shape the dynamics of GHG as we know it today and as it may evolve in the future. A research agenda that, within a broader polycentric approach to global policy (Koenig-Archibugi 2010), uses complexity as central analytical category can provide policy-makers with tools that are especially valuable in times of transition such as the current one.

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ⁱ Some limited initiatives to reduce fragmentation are initiated by recipient countries. An example is India under the National Democratic Alliance government, which announced in 2003 that it would accept bilateral aid only from UK, Japan, Germany, Russia, the EU and the US. The list was later extended to Canada, France, Italy and the Scandinavian countries (Guntupalli, this volume).

ⁱⁱ An important application of social network analysis to environmental policy outcomes is Ward, 2006.