TRANSLATING SCIENTIFIC KNOWLEDGE TO POLICY: COMPARISON OF BARRIERS TO EVIDENCE BASED DECISION MAKING IN NUTRITIONAL POLICY IN THE DISTRICT OF BANTUL AND GUNUNGKIDUL

Farah Purwaningrum[1], Yaniasih[1], Danarsiwi Tri Lastiwi[1], Ambar Yoganingrum[1], Dini Ariani[2], Fiona McDonald[3], Stephanie Doris Short[4]

[1] Pusat Dokumentasi dan Informasi Ilmiah (PDII) - LIPI, Jakarta
[2] UPT Balai Pengembangan Proses dan Teknologi Kimia - LIPI, Yogyakarta
[3] Queensland University of Technology, Australia
[4] University of Sidney, Australia
E-mail : fara.arum@gmail.com

Abstract

The current health decentralisation policy prescribes that district and city government have more decision space in managing their nutritional programmes, policies and intervention. District government is legally empowered to devise locally sound nutritional policies in accordance with their current strategy on food and nutrition. Indeed to take advantage of this momentum, research and development activities conducted among others by the *Bappeda*, NGOs and other research agencies, have added to the scientific "stock" of knowledge on nutrition. However the barriers of translating and usage of this scientific knowledge for nutritional policies have yet to be comprehensively studied. This article will identify and compare the barriers of translating scientific knowledge to nutritional policy in Bantul and Gunungkidul, Yogyakarta. To do so, it argues that evidence based decision making is one of the appropriate lens to observe the translation process. By using a qualitative research methodology through in-depth interview and stakeholder engagement workshop, we argue that knowledge translation processes in nutritional policy are influenced by governance structure, topographical factors, and communication practices between actors.

Keywords: Knowledge-translation, Policy, Evidence-based Decision Making.

MENERJEMAHKAN PENGETAHUAN ILMIAH UNTUK KEBIJAKAN: PERBANDINGAN HAMBATAN PENGAMBILAN KEPUTUSAN BERDASARKAN BUKTI DALAM KEBIJAKAN GIZI DI KABUPATEN BANTUL DAN GUNUNGKIDUL

Abstrak

Kebijakan desentralisasi kesehatan memberi lebih banyak peluang kepada pemerintah kabupaten dan kota untuk mengambil keputusan dalam mengelola kebijakan, program, dan intervensi gizi. Pemerintah kabupaten memiliki kewenangan hukum untuk menyusun kebijakan gizi yang bersifat lokal sesuai dengan strategi mereka di bidang pangan dan gizi. Dalam momentum ini, kegiatan penelitian dan pengembangan yang dilakukan oleh Bappeda, LSM dan lembaga penelitian, telah menambah jumlah pengetahuan ilmiah tentang gizi. Namun ada hambatan dalam menerjemahkan dan menggunakan pengetahuan ilmiah ini untuk kebijakan gizi. Hambatan-hambatan ini masih harus dipelajari secara komprehensif. Artikel ini mengidentifikasi dan membandingkan hambatan dalam menerjemahkan pengetahuan ilmiah untuk kebijakan gizi di Bantul dan Gunungkidul, Yogyakarta. Pengambilan keputusan berbasis bukti merupakan salah satu cara yang tepat untuk mengamati proses penerjemahan. Dengan menggunakan metodologi penelitian kualitatif melalui wawancara mendalam dan lokakarya yang melibatkan pihak terkait, kami berpendapat bahwa proses terjemahan pengetahuan dalam kebijakan gizi dipengaruhi oleh struktur pemerintahan, faktor topografi, dan praktik komunikasi antara aktor pengambil kebijakan.

Kata Kunci: Terjemahan Pengetahuan, Kebijakan, Pengambilan Keputusan Berdasarkan Bukti

Introduction

Dietary needs and intake for women and children in the third world are determined by biological factors, such as lifecycle variations in physiology and socioeconomic factors which include income and resources, time allocation, labour and food markets, government services, household infrastructure, cultural factors, knowledge and training, and environmental variations such as seasonal cycles and changes in residence (Hamilton, et al., 1984). The WHO Manual on Management of Severe Malnutrition referred to the incidence of severe malnutrition as both a medical and social disorder (WHO, 1999). Indonesia may not hold the top rank in the Human Development Index in terms of its health indicators in the year of 2005. There are 44% of Children with diarrhoea not receiving oral rehydration and continued feeding. In terms of maternal morbidity, 28% of births are not attended by skilled health personnel (UNDP, 2008). Much to say about this statistics, the main strand clearly indicates that the percentage of child malnutrition has been gradually decreasing along with the various interventions in place (put source) to increase the national profile of the nutritional status of women and children. In the case of Bantul and Gunungkidul-of which will be the focus of this paper- both districts are successfully meeting malnutrition reduction targets. Since assuming responsibility for the management of public health these districts have reduced the incidence of severe malnutrition in children less than five years of age from over six per cent, prior to decentralization, to 0.5 per cent in Bantul and 0.8 per cent in Gunungkidul in 2008 (McDonald et.al, 2009).

Under the health decentralisation policy framework in Indonesia district government has the focal role of managing health intervention especially in regard to improving the nutritional status of women and children. With regard to the health decentralisation policy, it is noted that there is a growing opinion in the evidence based related reference that might suggest that centralization might be the best policy option to deal with public health problems such as under nutrition. Mays and Halverson study of state and local administrative structures indicated that state-local relationships have a significant impact on performance of core public health functions (Bialek, 2000). They went on to state that centralized state-local structures result in substantially higher levels of communitywide public health performance. From this research, one may infer that centralization in public health makes sense for the future. However, this suggestion should be approach with cautious owing to the fact that several public health or nutritional programs should adopt a local component to ensure its efficacy and feasibility to be implemented. To argue further, research and development at the local level should be geared in providing a strong knowledge based responsive toward local based resources including in this case food related resources.

Evidence based public health is often coined as; “the development, implementation, and evaluation of effective programs and policies in public health through the application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models” (Brownson, et.al, 1999). Evidence based public health maps and facilitates the usage of scientific evidence for development processes. The usages of scientific evidence in here serve as a decisive point in this paper. Scientific evidence produced and reproduced through research and studies form knowledge. Knowledge in here implies a practical or theoretical understanding of a topic, and is thus a broader concept than that of research. While it could incorporate technical and scientific research, it may also point out to formal and informal sources of understanding, like experience. As Jones put it: “knowledge can be theoretical as well as empirical and context-specific” (Jones et.al, 2009).

Discussion on knowledge in the topic of nutrition is ripe in the realm of maternal knowledge. Indeed, maternal knowledge of nutrition is vital, since women has a vital role in

maintaining the household economy and their family health (Sargent, et.al, 1996). Hugh Water et.al by using the Indonesia SUSENAS data to measure the prevalence of underweight children 5 years of age demonstrated how mothers' education has very strong protective effects (Waters, et.al, 2004). Skoufias addressed that the level of education of the mother has a bearing in the overall nutritional child status. In urban areas, the education level of the household leaders has no significant effect on the health of either boys or girls. In contrast, mothers with a senior high school (or higher) level of education have healthier boys and girls. Whilst in rural areas, mothers with the highest level of education also have healthier girls (Skoufias, 1999). Skoufias illuminate how the gender based biases is prevalent in the society. Children expected to take advantage from maternal education as identified by Reed are those from households of intermediary conditions amid the poorest and the wealthiest. It is in these households formal education would facilitate the mother in making better decisions about the allocation of limited resources to the benefit of her children (Reed, 1996).

Block took a rather different stance by contending that maternal nutrition knowledge is critical, more so even than formal schooling, in determining child micronutrient outcomes (Block, 2002). Mary J De Silva identify how knowledge transfer may be mediated in the social connectedness thus enabling mothers to know more with regard to child nutritional status (De Silva, 2007). Indeed mothers are an excellent target group for nutrition education intervention as they are primary decision maker in preparing food in family households (Silk, 2007).

These scholarly approaches have emphasized on the importance of mother cognitive knowledge, instead of looking at the means of knowledge translation in the public realm whereas knowledge may be highly contested and negotiated by various actors. Thus, there is a gap in looking how the translation process takes place in scientific evidence and what are the barriers of such process. This article intends to address the gap by discussing the various modes of knowledge translation processes and comparing the barriers of using scientific evidence, in this case scientific knowledge for decision making in the district of Bantul and Gunungkidul, Indonesia.

This article will focus neither on the production nor reproduction of knowledge although both of these concepts are closely related to knowledge translation as such. It will discuss barriers in terms of governance structures, topographical factors as well as communication. Knowledge translation processes should be taken up in complexity, since the understanding of the production, reproduction and transformation of knowledge should be placed in terms of 'life worlds" of the individuals and groups involved (Schutz and Luckmann, 1973). It is argued that evidence based decision making is one of the appropriate lens to observe the translation process. Based from the case study in the district of Bantul and Gunungkidul, it is contended that knowledge translation processes in nutritional policy are influenced by governance structure, topographical factors, and communication practices between actors.

This article will be divided into several parts. The first part will explain the methodology employed in the research. The second part will discuss the viability of evidence-based decision making as an analytical tool to observe the translation process. The third part will explore the means of translating evidence as scientific knowledge to policy in nutritional health. The fourth part will explain barriers of translating knowledge to Policy in Bantul & Gunungkidul. The last part would conclude the discussion.

Research Methods

The methodology employed is qualitative research using stakeholder engagement approach. Semi-structured interviews with key stakeholders in Bantul and Gunungkidul April/May 2009 (n=25 for Bantul and n=39 for Gunungkidul) and then stakeholder workshops were conducted to gain feedback of the stakeholders in regard to the result of the interview process.

The institutions interviewed in the two districts are as follows: *Dinas Kesehatan* (Health Bureau of District Government), *Dinas Pendidikan Dasar dan Menengah* (Elementary and Secondary Education Bureau of District Government), *Dinas Pendidikan Usia Dini dan Non Formal* (Early and non-formal Education Bureau of District Government), *Badan Koordinansi Keluarga Berencana* (Planning Family Coordination Agency), *RSD* (General Hospital of District Government), *Kantor Pusat Data Elektronik* (Electronic Data Center), *Badan Perencanaan dan Pembangunan daerah/BAPPEDA* (District Planning and Development Agency), *Dinas Pertanian dan Kehutanan* (Agriculture and Forestry Bureau of District Government), *Dinas Peternakan dan Perikanan* (Husbandry and Fisheries Bureau of District Government), *Dinas Sosial* (Social Bureau of District Government), *Pusat Kesehatan Masyarakat (PUSKESMAS)* (Community Health Centre), *Posyandu* (Integrated Services in Villages) and NGO.

This paper will take up the knowledge policy dimension of the research project between Indonesian Institute of Sciences (LIPI) and Queensland University of Technology (QUT) titled: Evidence Based Decision Making to Strengthen Governance at the District Level, the Case of Nutritional Policies, Programmes and Intervention in Bantul and Gunungkidul.

Discussion

Evidence Based Decision Making as an Analytical Tool

> Evidence based decision making is defined as:
> "the systematic application of the best available evidence to the evaluation of options and to decision-making in clinical, management and policy settings." (CHSRF: 2000)

Specifically, evidence based includes the following tools in incorporating evidence in the field of nutrition in order to facilitate decision-making (Brownson; 1999) the first one is meta-analysis which is a quantitative approach that provides a systematic, organized, and structured way of integrating the findings of individual research studies. The second one is quantitative risk assessment is a widely-used term for a systematic approach to characterizing the risks posed to individuals and populations by environmental pollutants and other potentially adverse exposures. The third analytical tool is Economic evaluation, commonly through cost-effectiveness studies, that should be an important component of evidence-based decision making. These methods provide information to help assess the relative appropriateness of expenditures on public health programs and policies.

The fourth analytical tool is public health surveillance involves the ongoing, systematic collection, analysis, and interpretation of outcome-specific health data, which are closely integrated with the timely dissemination of these data to those responsible for preventing and controlling disease or injury. Lastly, Expert panels and consensus conferences may assist the process of evidence based decision making. Most government agencies, in both

executive and legislative branches, and voluntary health organizations utilize expert panels when examining scientific studies based on explicit criteria and determining their relevance to health policies and interventions.

Evidence as shown above provides the basis for health nutrition interventions and programmes. It increases the capacity and the quality of the interventions and programmes to achieve its intended aims namely reducing the numbers of cases of malnutrition and at the same time improving the nutritional status. Evidence in here is taken up as scientific knowledge due to its alleged scientific rigorousness owing to the fact that research, experts and studies are the main contributors of the production and reproduction of evidence.

Scientific and technical knowledge is uniquely important because it produces incremental capacities for social and economic action or an increase in the ability of "how-to-do-it" that may be "privately appropriated" (Stehr, 2001). According to Nico Stehr, Scientific and technical knowledge, while clearly representing such "capacities for action", do not thereby become uncontestable, no longer subject to challenge and interpretation. Scientific and technical knowledge is uniquely important because it produces incremental capacities for social and economic action or an increase in the ability of "how-to-do-it" that may be "privately appropriated", at least temporarily. Scientific knowledge is inseparable from the cognitive element of interpretations on the one hand and the relationships and interactions of actors in reproducing and reproducing it on the other hand. Knowledge however gains importance in modern society. Indonesia is "progressing" towards modern society based on knowledge. Modern society is often characterized by risk (Beck, 1992) including in utilizing various instruments to minimize hazards and risks in Health.

Scientific knowledge has its determination to distance with subjectivity, and to a certain extent emotion. It is imbued with, to name a few, a cycle of procedure, documentation, codification, and reproduction. While scientific knowledge may has its epochs of evaluation by means patent citation, publication and other means of appraisal possibly from bibliometrics/scientometrics methods. Local knowledge on the other hand is locally situated, rooted in the local or regional culture and ecology, including the respective social contexts and their economies (Antweiler, 1998). Gerke and Evers have indicated that the capacity to benefit knowledge is governed by two elements, namely the ability to acquire and to apply knowledge, and the ability to produce new knowledge. Furthermore it is asserted that to achieve a sustained development, it is necessary for the knowledge to be imported and adapted to local requirements. (Gerke and Evers, 2003).

Along with the decentralization policy underway in Indonesia, the BAPPEDA (the District Agency for Planning and Research) as well as other actors in the district level are taking up the roles of planning, integrating, and translating knowledge into policy. The next part will discuss the social processes of translation.

Translating Evidence as Scientific Knowledge to Policy in Nutritional Health

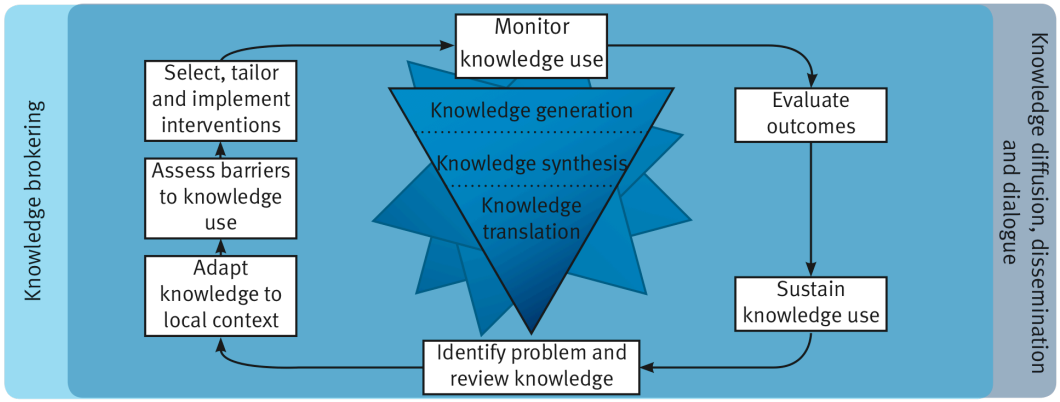
Knowledge translation and knowledge use in the policy sphere in developing country contexts is still in a fledgling state, there is a tendency to increase the stock of knowledge by conducting more research and development activities, increasing more budget in research and development, however the question remains hoe does one translate it and put it to use in policy. It is noted in the past how research conducted in social resilience (*ketahanan sosial*) has managed to transform into policy marked with the revision of poverty indicators of Susenas in the year of 1998/1999 in Indonesia (Gerke, 2002). With the availability of local resources, food and natural resources and equipped with a strong knowledge based, district government could strategically foster knowledge translation processes to policy.

The Canadian Institutes of Health Research (CIHR) have referred to knowledge translation as 'a dynamic and iterative process that includes synthesis, dissemination,

exchange and ethically sound application of knowledge'(CHSRF: 2000).

Knowledge translation thus goes beyond disseminating research and the isolated production of communication products such as policy briefs and working papers, to critically engaging with users of knowledge in different ways. The knowledge generation and translation cycle model (Figure 1 below) is adapted from the CIHR knowledge-to-action cycle. The knowledge 'funnel' in the centre conveys the idea that knowledge needs to be distilled before it is ready for application (CHSRF: 2000).

Figure 2: Knowledge generation and translation cycle



Source: Adapted from the CIHR knowledge to action cycle at www.cihr-irsc.gc.ca/e/39033.html.

Anna Katharina Hornidge has identified that the characterization of knowledge i.e. the level of plurality or singularity, is influenced by the modes of governance (Hornidge: 2007). She studied the creation of knowledge society in Germany and Singapore and inferred analytically that the concept of knowledge is also shaped by structural realities namely political and legal system, historical experience and economic situation. A patriarchal and hierarchical society will have an impact on the way knowledge system is embedded (Wall: 2006). Caleb Wall ethnographic study of knowledge in agricultural production and extension in Uzbekistan showed how innovation is impeded and the creation of new knowledge is slowed with the knowledge monopoly by the state. Effective knowledge governance calls for the state to reorientate itself towards governing knowledge in the interests of the society rather than of itself. For the case of the districts of Bantul and Gunungkidul, this means questioning to what extent to these district governments engage with various actors in the knowledge productions and reproduction processes, as well as in building a strong knowledge base of local resources.

Currently there are two strands of the knowledge translation processes. The first one is a linear-one way of technology/knowledge transfer. In this linear mode there is prevalence of the assumption that state organization and state related actors as "Experts" (Wall: 2006). Linear progress entails that scientization improves life-world knowledge, makes it more precise, and eliminates superstition and error (Boehme: 2005). The second one is the non linear-learning focused on technology/knowledge transfer. This strand sees farmers as "experts," apart from the state related actors. Farmers and local actors are capable of complex decision making regarding their *habitus* (Roling and Fliert, 1994). The objective scientific truth and farmer/local actors realities may not be the same, but ways have to be sought to bring the two together (Deugd, et al., 1998; Long, 2001). Roeling suggested that the focus ought to be facilitation of joint learning, instead of a simple transfer of technology. Indeed, facilitation of Joint learning, farmers and local actors has a role in the reproduction of

knowledge accordingly with their realities (Deugd, et al., 1999; Ayenor, et al., 2004). The second one seems to be much more plausible offering more space for actors to negotiate and understand scientific knowledge for policy.

EBDM uses framework, analytical tools that attempt to bridge the differing perspectives on the usage of evidence for decision-making in public health. The challenge of EBDM lies on the restraint that one should take not to use a uniform approaches even at the district level, due to plurality of local knowledge systems relating to among others survival strategies due climatic changes affecting crop results, association of a consumption a certain food with a symbolization of a particular lifestyle (McDonald et.al: 2009). The case study in Bantul and Gunungkidul showed how knowledge translation processes are influenced by the governance structure, the topography, and communication practices among actors. By taking evidence as scientific knowledge, the barriers of incorporating scientific knowledge for policy making will be explored from three subsystems, namely governance structure, topographical-health related factor, communication factors will be explored in the next paragraphs.

Comparing the barriers of EBDM in Gunungkidul and Bantul

Bantul was one of the district that was inflicted with earthquake in 2006. It was often hailed as one the districts in the Province of Yogyakarta that relatively successful in economic terms. In bantul the follwing scientific knowledge for nutritional intervention and programmes is utilized: the research report, data reports , personal experience, assumptions and input from mass media. Gunungkidul on the other hand faces challenges of poverty with 30 per cent of its inhabitants are below the poverty line. In Gunungkidul, scientific knowledge used ranges from surveillance, maternal and health data, survey up to experiences. Both districts are chosen due to the characteristics of the problem faced in the translation processes are also evident across Indonesia.

The barriers in governance structure for incorporating this knowledge to policy in Bantul is due to a strong top down approach at the district government level, and the disparity of hierarchy caused the Electronic Data Office difficulties to collect data from higher level local government institution. The bureaucracy culture is still dominant, the hierarchy is an important point in doing any activities and coordinating several offices to deliver programs, the higher echelon of the offices, the higher authority will they have. In decentralization era, the local governments have authority to create the governance structure to reach their goals. Regarding with decision making done by the managerial level of Bantul district, the decisions are also affected by the appeal and impact of the personality of a key decision maker and his or her skills to persuade, the credibility of certain actors, or the anxieties or hopes that influence the dynamics of decision making (Fischer, 2006). The Bupati (regent) has strong personality in persuading his staff to run his concept (namely DB4MK and fostering father). In Gunungkidul, barriers arising from sectoral interests (ego-sectoral)-and the lack of integration of indicators. The *musrenbang* processes in the local level are not based on scientific evidence, more treated as bureaucratic routines. This musrenbang process also suffers lack of participation from key stakeholders in the local level, causing lack of strategic interaction and understanding of actors in regard to nutritional related knowledge. Furthermore there are different capacities of accessing resources (scientific knowledge in health) in the village, sub district to the district level as well as between the district and the parliament causes different level of understanding the problem. The local parliament (DPRD) does not have access to the knowledge available for the process of check and balances, this potentially might cause power asymmetry.

The barriers in the topographical-health related factor for the case in Bantul is as follows: many areas in Bantul such as some villages namely Kedungkromo, Jatirejo, Karangtalun, Nogosari and Karang Asem are located in mountainous area that might hamper

access especially for volunteers. The challenge in topography seems to be much more evident in Gunungkidul. The rural as well as remote areas such as Mertelu and Planjan Village have limited infrastructure and lacking in human resources especially in the field of health to understand concepts at the district or the national level such as SPM. Local knowledge for example on planting a certain crop that has historical association with the local food resources which are different in rural areas are not supported with a strong knowledge base and not supported by a policy in the district level.

The barriers relating to communication modes and practices in bantul does not carry the same gravity like in gunungkidul. In bantul there is a communication and knowledhe sharing in the form of exchange of information and shared meetings between executive and legislative bodies. However communications between head of offices are intensive mainly in conducting the programs outlined by the Bupati (regent). In Bantul, researchers generally do not interact directly with decision makers -they just send in a report about their research findings. The problem is these reports often cannot be effectively accessed and used by decision makers. Whilst In Gunungkidul, communication among actors is much more prevalent within one division/bureau in governments. Communication seems to happen externally in terms of budget-sharing or in musrenbang, they are indeed often bureaucratic in nature. The bureaus may have difficulties in accessing the data and information as well as and understanding how these affect the policy-planning from other bureaus for example the Bappeda have difficulty in accessing the maternal health data in the Health Bureau. It is difficult to sustain in the long terms basis of the current innovation of using local resources for food taken by the nutrition volunteers (*kader gizi*) due to the lack of knowledge base in regard for the local food alternative available as well as lack of strategic interaction among stakeholders in planning (Musrenbang) or decision-making process.

Conclusions

By defining evidence as scientific knowledge, it is contended that EBDM is one of the possible lenses to see the knowledge translation processes towards policy. Uniform approaches should not be employed as society has complex local knowledge systems. Rather than a linear process, a plausible knowledge translation would be likely if one take into account the process of learning from different actors. It is also argued by taking into account the case study in Bantul and Gunungkidul that knowledge translation processes in nutritional policy are influenced by governance structure, topographical factors, and communication practices between actors. Based from our research result: we have identified the barriers from three subsystems, namely governance structure, topographical-health related factor, communication factors within these two districts.

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