

Development of a clean food and water environmental policy in a third world city

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Introduction

Low levels of food hygiene are an accepted problem in many third world cities. A large proportion of the populace accepts this as an unpreventable fact of life. Awareness of the reasons for and sources of contamination are low. (CORI 2001, Raharjo 2001). The aim of this policy is to reduce the level of food borne illness in a third world city. Such a program will need to attack the problem on multiple levels, such as education of the general public, education of the food vendors, and some form of enforcement (MacMillan 1999; Raharjo 2001). The community must feel some degree of ownership for the program or it will be taken as simply an external program of no relevance to local groups (MacMillan 1999). Although the model developed in this paper is targeted towards Indonesian health and social infrastructure, it may be applicable elsewhere in similar less-developed cities.

Public education

Health education of the public would need to take place at three levels.

1. Basic hygiene education would be introduced into local schools. Children would be taught the theory of contamination with basic examples. Materials would be given out to take home to families.
2. Housewives would be targeted through village community health councils. One to three women from women's community volunteer groups (generally known as a Posyandu) run regular public health education meetings using materials from the regional health department. The women would be taught theory and given basic examples using program material very similar to the school programs. This would then lead onto discussion groups (Frederick 1992; McMillan 1999)
3. Local newspapers and radio stations would be asked to run interviews and education specials to spread the message across the wider community. This would be done as a public service.

Education of food vendors

This is more difficult since the majority of food vendors run extremely low margin operations and often rent their food carts on a daily basis (Figure 1). Time off for education means less money for family at the end of the day. Large establishments with poor reputations are less of an issue because they simply go bankrupt as people learn to avoid them. A recurrent theme should be that good hygiene needs not be something only the rich can afford, but merely the application of good habits. Successful participation at all levels would be rewarded by accreditation and award of a certificate.



Figure 2: "Toko Empat" – a street size mobile food stall. Clean ice is in the green insulated container and clean water for washing is in the bucket.

This requires a multi-level approach.

1. Direct education to food vendors in the street. With the sheer number of vendors, this could be done using a one-to-one direct approach by Posyandu. Increase the emphasis that vendors with a good reputation tend to get more repeat business. Local and regional cultural sensitivities could then best be approached using tailored programs (MacMillan 1999).
2. Educate the owners of street food carts separately with the same material. Encourage "branding" to chase repeat business and enhance profits. Regional Health Department officials or Posyandu would implement this. The certificate of accreditation would be compulsory and subject to a fee.

3. Regional Health Department officials will need to target small restaurants. Proprietors would be taught theory and given practical examples. Give emphasis on the benefits to reputations of good standards. Sessions may be on an individual basis or on a group basis. The certificate of accreditation would be compulsory and subject to a fee (Figure 2).
4. Large establishments would be expected to run their own in-house training programs for new and existing staff. Materials could be purchased from the Health Department or could be developed in house. The pricing would be structured to factor in a cross subsidy to cover other levels of education. The certificate of accreditation would be compulsory and subject to a fee.

Regulation

Local hospitals and doctors would be asked to report patterns of illness. Unlike Western health systems, compliance would be low for fear of offending food suppliers and food establishments. Microbial culture and serological typing would rarely be available.

Figure 2: Popular up market open-air street side (middle class) restaurant.



Persistent unacceptable patterns of illness would be investigated by the Health Department. Compliance with Health Department guidelines is effectively voluntary due to the lack of strength in the justice system. However, establishments with problems can be “blackmailed” by the threat of publishing a list of at risk establishments, or not being included in a list of recommended accredited establishments.

Content of education packages

Health educational material should be based on the HACCP system (FSIS 1998) and include the following elements.

- Water and food sourcing - Sources of clean water, sterilization of dirty water, storage of clean water, sources of clean food, sterilizing vegetables, storage of food separated by type, serving clean food, types of food suitable for different establishments.
- Storage - how, what and what not to store.
- Hygiene - hand washing, washing utensils, clean environments.
- Cooking
- Serving
- Refuse - Packaging and safe disposal of refuse, when to throw away and how (Figure 3).

Explaining the human implications of this policy to the public

Food related illness in the United States accounts for 76 million illnesses each year, in a country of around 250 million people (Mead 2000). In a third world country, food related illnesses are more common. In a recent survey in an area of Indonesia, diarrhoea episodes were measured by the number of times a month a child fell ill (CORI 2001). Malnutrition is one of the leading causes of hospital admission and a leading cause of infant mortality (Nasution 1991). Malnutrition is a leading cause of failure to thrive in childhood with reduced outcomes for adult body weight, and intelligence (CORI 2001; MacMillan 1999). It follows that even a partial implementation of this policy will result in an increase in child life expectancy, an increase in overall intellectual performance and an increased body size and overall physical endurance.



Figure 4: City household and restaurant waste disposal to a city drain. Note the water colour.

There is a secondary implication. Contamination of water and food comes from poor handling techniques, such as inadequate waste disposal (Figure 3). A policy of this nature should thus lead to a reduction in environmental pollution.

The basis for success

- The policy is based on existing international models of public health policy that work, and that have evolved over many years (FAI 2000; FSCG 2001; FSAI 2000; NHPC 2001).
- The policy is adapted to local institutions and infrastructure that are also proven to be stable and durable (Macmillan 1999; Raharjo 2001).
- The policy is delegated to the lowest part of the national health infrastructure. This is designed to give local “ownership” of the policy to ensure maximal participation.
- The policy uses epidemiological detection, avoiding the more expensive laboratory-based detection, which, even if affordable, is usually beyond the reach of local authorities.
- The policy avoids use of the judicial system, which is not always reliable in third world countries, and depends heavily on incentives. For the householder there is the incentive of simple techniques to reduce family illness, improve children’s physique and intelligence. For a complying problem free business there is the incentive of free advertising versus being on a public blacklist if there are persistent problems.
- The policy is aimed at a society whose members, wherever possible, will seek new methods and techniques by whatever means possible (including through education) to adapt and improve status and quality of life. This policy would give complying families a knowledge tool to “get ahead” in society with little effort.

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