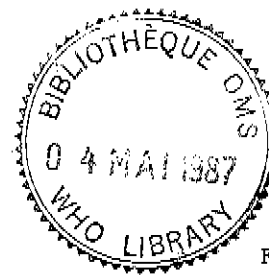




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FOOD SAFETY AT HOME: SOME SOCIOCULTURAL CRITERIA  
FOR RESEARCH AND APPLICATION

by

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The Food Safety Issue: Problem and Approach

Since the general issue of "food safety and behavioural sciences" was recently discussed in an excellent paper by the anthropologist, George F. Foster, and a WHO Health Specialist, F.K. Kaferstein (1985: 1273-1277), I shall refrain from repeating the history, development and general rationale for doing food safety research. For our purposes, however, it is useful to recall that though a concern with "food hygiene" goes as far back as 1955 (WHO Technical Report Series No. 104), the subject generally received peripheral attention because it was narrowly defined in relation to the larger goals of disease prevention and health promotion. Equally important, the direct relations between unsafe food and infant diarrhoea, and unsafe food and general malnutrition, morbidity and mortality remained either masked or largely unrecognized until recently. The needed major impetus for correctives came with the establishment of the WHO Program on Food Safety in 1978.

A crucial step in broadbasing the food safety issue consists in recognizing direct interdependencies between a sociocultural system and food nutrition issues on the one hand, and a community's indigenous health criteria and the facts of public health, sanitation and personal hygiene, on the other. A balanced, nutritional meal, for example, can be effective only when it is taken by a disease-free, health conscious person (or community). (For a statement of the issue, see WHO Technical Report Series No. 667). The full, global magnitude of health and nutrition problems caused by unsafe food may still be hard to determine but everybody now senses that it is enormous: "In 1980 alone, it was estimated that there were more than 1000 million cases of acute diarrhoea in children under 5 in the developing world (excluding China); of these, 5 million died" (Joint FAO/WHO Expert Committee Report, June 1983).

Approached in this context, food safety research acquires pivotal significance and it should best proceed with maximum coordination between health and behavioural sciences. In turn, it means that the behavioural sciences not only make up the extant lack of applied research on the subject so far (a point noted by Foster and Kaferstein, 1985), but they must also make it a subject of systematic study for its own intrinsic value. Methodologically,

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food safety issues demand coordination of health and social science concepts based on qualitative and quantitative data, and micro and macro approaches for uncovering the maximum information on and the communicational strategies toward the reduction of food (and the resulting health) hazards. Further, food safety research, in my view, has a double pay-off: as it helps link and extend basic research across the health and sociocultural (especially sociological and anthropological) sciences in such a well-defined and concrete area of human activity as food handling and eating, it must also encourage application of effective research findings for improving the health and nutrition of millions.

In this paper, I shall confine myself to food safety issues, especially as viewed from the direction of sociocultural anthropology of food systems and nutrition issues (e.g. see Khare and Rao, 1986; Jerome, Kandel and Felto, 1980). We will focus on food safety as it most often concerns low-income households in a developing country. Our attention will be specifically on what Foster and Kaferstein (1985) called "the food chain", for cultural approaches and communicational strategies to conduct food safety research on low-income households in a traditional society.

Though the subject of food safety can be apprehended for a sociocultural study in several different ways, we will emphasize these interrelated aspects: (a) food safety issues should be treated as integral to the larger sociocultural food system and the popular cultural notions of personal health and hygiene; (b) food safety research involves a two-way communication and understanding between the experts and the people under study for the improvement of people's personal and familial habits about food and health; and (c) at the center of the food safety problem stands an effective health and nutrition education of specifically targeted individuals and groups within a community. The goal of better education depends upon a better understanding of people's modes and channels of effective communication.

As discussed elsewhere for the food and nutrition programmes (see Khare, 1985), there is a need for according serious and equal attention to indigenous values, attitudes and behaviours by the national and international experts. Only in this way can the channels appropriate for two-way communication be opened. The local and regional channels of effective communication should be examined for their full worth before specific research studies and intervention projects are planned, much less executed. The scientific and expert-advisory ethos is now an internationally-shared subculture and it should be consciously kept open to indigenous facts, channels and strategies of communication, without major presuppositions and biases.

The expert approach would best do to examine all three -- positive, negative and indifferent -- conditions and factors affecting food safety in a society, learning how people differentiate between, and communicate about, the three conditions and how people's own communication devices can be modified and redirected to strengthen the messages for improving food safety. Logically speaking, positive and neutral cultural conditions and values should attract the expert's attention most, for this is where his interventions are likely to receive either only limited or superficial resistance from the people's own attitudes and practices. The strongly negative attitudes toward food safety need to be tackled last and indirectly, as far as possible with the help of some favorably inclined community members and the earned general goodwill.

When concerned with households, anthropological studies conducted around the world support the observation that households undergo "cycles" of development and change with birth, initiation, marriage and death. And such cycles may also often produce communicational "openings" suitable for attitude and behaviour modification, especially those which people themselves find to be conducive to improving their quality of life. Food safety research must examine the domestic cycles of social transition, for getting better attention and follow-up action from the recipient society.

#### Scope, typology and emphasis

Safe food, in its widest cultural sense, is a necessity for healthy life. Absolutely or totally safe foods are a moral and social ideal for all practical, including health, programmes. Whether nature is capable of providing absolutely safe foodstuff remains an

open question for science, philosophy, anthropology and religious values to discuss. In some cultures, including perhaps Christianity, it is the original human "sin" and "fall" that brings about imperfect or only partially "safe" food for human beings. Thus, though the religious conceptions, ideals and meanings of safe food constitute a subject of inquiry by itself, we will move on to a preliminary typology useful for us to recognize, to deal with the practical issues of improved nutrition and health education.

Food safety, as Foster and Kaferstein (1985:1273) observed, is concerned with "all conditions and measures that are necessary during the production, processing, storage, distribution and preparation of food to ensure that it is safe, sound, wholesome and fit for human consumption". Such a comprehensive definition of the subject, in fact, also assumes that ideally there should be little or no difference between the scientific conception and the cultural acceptance of "safe food", whether the recipients be experts or the illiterate poor people of a Third World country. But the reality is otherwise. Scientifically safe foods must also be culturally acceptable foods to the people for whom they are intended. And to do so, we now know that we must acquire a holistic view in which sociocultural, symbolic, psychological and communicational criteria can freely interrelate to increase our understanding of how people label a food safe, relatively safe, or unsafe under different circumstances. But achieving such a methodological goal under the concrete conditions of a specific project is not always easy. Still, try we must.

To begin with, food safety research needs to identify systematically all the major sources of food contamination, adulteration and mishandling in a society that (a) the culture and people of a locality or a region recognize, (b) the local scientists and health experts recognize, and (c) the positive overlaps that both (a) and (b) produce in practice either automatically or with minimal cultural modifications. The standard scientific causes of unsafe food -- bacteria, virus, and man-induced food adulteration, mismanagement, and chemical additives -- require to be examined in situ (i.e. foremost within their naturally occurring sociocultural contexts), in order to devise appropriate social ways to modify people's associated attitudes and behaviour. If, for example, drinking water is stored too close to a drain, if polluted water is employed by a milk-seller to adulterate milk, and if a modern food processing technology continues to add deleterious (but as yet legally unregulated) chemicals to make the product more palatable, attractive or longer-lasting, all the three cases must draw attention to a larger socioeconomic pattern of tolerance for unsafe foods. And for the patterns of behaviour to change, people need to be convincingly educated: that is, they must communicate, back and forth, with specialists until fully motivated to change their behaviour toward a concrete, visible gain in their everyday life.

Anthropologically speaking, the goal of intensive positive communication and education is best approached and studied in such a well-defined sociocultural domain of learning, experience and discourse as the family or household. Once the major patterns of behaviour promoting or strengthening food safety are introduced to, and adopted by, the family then the larger battle is often won on behalf of the larger society. In any case, in the view taken here, food safety research on households should receive primary emphasis and significance. It is the foundation on which all other community oriented food safety programmes rest for validation and reinforcement. This is because households in almost all societies continue to be the primary arena of interpersonal socialization, communication and motivation for proper eating, improved health and preventive medicine. Role models as well as the contexts and forces for positive behaviour modification also naturally appear here. Since food safety is basically concerned with individual health attitudes and food habits, formed early (and mostly) within one's family surroundings, stable positive changes are also best started here.

#### Constituents of the domestic food cycle

Considered in the context of intrahousehold education and communication, major food safety issues need to be identified on an everyday basis, producing a profile of people's habits and foods that pose maximum health risk on a recurrent basis. In such a fact-finding community survey, safe water should be considered integral to the essential definition and scope of safe food. Very often, this may be because (and as) the people themselves consider water to be part of foods -- everyday meals. The health and nutrition experts may specially want to exploit such a culture-given linkage, rather than disregard it.

In order to collect systematic information on the "domestic food cycles" (see Khare, 1976; Khare and Rao, 1986, for elaborating such "cycles"), their relevant constituent parts should be recognized for how they function vis-a-vis the issues of food safety. Major parts of a domestic food cycle, in most cultures, are: processing and storage of uncooked food within the home; preparations for cooking; cooks, utensils and culinary habits; post-cooking food handling and storage; feeding and eating; and the treatment and disposal of left-overs. These phases of a domestic food cycle are fairly widely shared across the developed and developing societies, providing a general model of domestic food handling. In it appear people's habits of domestic sanitation and personal hygiene for or against safe foods (e.g. Khare, 1962, reprinted 1977). An account adequate for food safety purposes must treat both -- people's sense of domestic cleanliness and public health aspects -- together, especially when they appear interrelated in everyday domestic cycles.

Since such an investigation of the domestic food cycle is crucial for any sociocultural study of food safety, I provide in the Appendix a range of general pointers and criteria for collecting data on: (1) cooking and culinary habits; (2) storage; (3) feeding and eating; (4) domestic sanitation and personal hygiene. As a food cycle, these segments should be viewed in the background of the people's classification of safe/unsafe foods and the discussion should be extended until the issues of personal hygiene, public health and health education are directly implicated.

Any study of the domestic food cycle must start with an understanding of how people culturally classify foods and group them as a meal or a diet, with often explicit notions of health (or disease prevention and control) inherent in it. Diet, disease and treatment are often considered interdependent in most human cultures. Some foods are distinguished because they spoil or rot or perish more easily than others (e.g. milk and fruits). Those spoiling easily might be awarded either positive or negative health value by the folk medicine. Ecology, climate, and seasonal variations become important variables in such interrelationships between food, rotting, edibility and food safety. The whole subject depends on culture, ecology and cooking -- and the food safety interventions would do better to take such folk knowledge into account.

For food safety research, similarly, the intrinsic "hot" and "cold" properties awarded to food, and their alteration by cooking, are vital to know. Foster (1983) mentions a case illustrating the point from Mexico, for food safety research. India employs the distinction in an intricate way to show how food and personal health are interdependent (see Nichter 1986). We should be careful when such deep-seated cultural (and indigenous medical) criteria conflict directly with those scientific. In such a situation, appropriate communication structures are needed most, and their recognition falls on the food safety research personnel in a special way. The physical (temperature-related) hot/cold distinction in cooked foods is also of obvious scientific relevance to our subject, but the interrelationships between the two sets of hot-cold distinctions are not always congruent, complicating the task of the food safety researcher. For example, in India unboiled milk is intrinsically "cold" and naturally pure, while boiled (and in temperature hot) milk is "hot" but not impure. Both types of milk are essentially healthy in Indian terms, but not so in the scientific sense: unboiled milk causes diseases, even the ordinary people in India now know, and they may modify their behaviour accordingly, changing the traditional notion of "perfect milk" being that which comes directly from the udders of a cow.

A similar cultural evaluation is useful for the "wet", "moist" and "dry" categories of foods and their role on preventing diseases. Are "wet" foods in some cultures known to cause diseases, especially when the water supply is infected, or when the period of post-cooking storage is prolonged, the fuel shortage disallows reheating of foods, and the people frequently have to eat cold foods (even if they prefer to eat hot meals -- essentially for taste)? All such variables are important to investigate for devising strategies for health education. A study of people's habits for processing fruits with complete or incomplete natural covering, and washing them before or after the removal of covering, are significant features that complement the natural and/or culinary distinctions of wet and dry.

Folk schemes of basic food classification are thus vital to know because almost invariably it is in this cultural background that the scientific knowledge of food safety has to work to succeed in behaviour modification. Anthropology can be helpful in devising often regionally valid (i.e. applicable to several societies and countries) cultural grids on food classifications in which the health and nutritional criteria also appear in a natural way. At the least, some major cultural blunders can be avoided in this way.

#### Locating avenues for positive change

Besides the cross-sectional approach to the domestic food cycle, a developmental -- long-range -- perspective on the household is equally desirable. This is because a household over time provides "openings" for motivating people to improve food safety in everyday life. As a young couple begets and raises children, not only do the intrahousehold communication structures modify (irrespective of whether the family is nuclear or extended) but so also do the food preferences, culinary habits and concerns for collective health, safety and security. Children become the focus of attention. As one's children, in turn, mature, marry and establish their own families, another wave of communicational "openings" passes through.

Such openings are usually culturally subtle (yet institutionalized and substantive) in traditional societies, where the families are usually extended, with mechanisms for social continuity as well as change located within the domestic organization. In nuclear families, the intergenerational transitions tend to be more abrupt, with possibilities for corresponding "breaks" in food habits, culinary styles and food-safety related practices. New dishes may be added or old ones modified. Left-over foods may be differently handled. Such "breaks" may provide positive occasions for introducing scientific information on domestic sanitation and personal hygiene. Considered in the context of the family as a whole, young couples, first-time parents, and school-educated youth and adolescents are likely to act as centers and avenues for enhancing food safety within the household. Some points that concern us are:

- (a) knowledge of major intrafamily grids of communication and motivation among the core relatives in matters of food, cooking, personal health and the pursuit of collective family welfare;
- (b) identification of crucial relatives and persons (e.g. parents, mothers-in-law, advising "uncles", the educated and the "old and wise") and the major established modes of communication everyday for the domestic approach to food and health concerns;
- (c) open-minded evaluation and integration of local intrafamilial strategies of socialization and education in food safety research, especially since food handling and health often constitute a sensitive and intimate social affair (though not necessarily a "private" affair in the Western sense) in many societies, where even well-intended intervention from the outside is not only resented but often discarded without due hearing;
- (d) avoidance of any effort to "short-circuit" the institutionalized domestic food and health networks (and networking procedures) to speed up project implementation, since such steps almost always tend to increase the distrust of not only health and food experts but also cast the scientific information and action in doubt;
- (e) avoidance of domestic conflicts and tensions while implementing a food safety health project, so that intergenerational sharing, rather than everyday conflict, within the households (whether nuclear or extended) can become the basis for carrying out the project; and
- (f) periodic retrieval and review of the "big picture" valuable to households and their sociocultural priorities, especially when a food safety project develops a tendency to concern itself with too many technical specifics (for its own short-term goals), at the expense of the recipient's notions of the family values and welfare over time.

Such precautions are all for effective food research and its applications, and they apply with double force when the matters of food and health of a household are concerned.

The equally important point is that since communicational centers (i.e. relatives and social contexts), channels and grids closely encircle and evaluate any major change in intrafamilial food behaviour, a preliminary knowledge of everyday domestic communication is as critical as of locating these "openings" that the domestic development cycle (i.e. the contexts and events of education, marriage, occupation, migration, child-birth and marriage of one's own children) affords. The thesis here is that even in traditional societies, there are definite sociopsychological "openings for improving one's lot" on certain occasions and a persistent, long-term health programme (particularly at the national level) should repeatedly approach them for instituting positive changes in partnership with the people. Psychological transitions also occur, for example, after serious illness and death, but they may usually have some hidden negative messages, especially after death. Since a serious disease jolts the entire family, and a recovery from it encourages positive behavioural changes, the context can be better employed to promoting food safety.

#### Networking target groups and priorities

As a continuation of our communicational approach to food safety issues, we must identify specific target groups within the household for special attention. In this context, "networking" is necessary to produce the necessary and sufficient communication and understanding between the people and the project personnel in respect to specific target groups and a set of manageable goals. The intra-household target groups for the safe food research are essentially the same as those recognized for food and nutrition research -- infant and children, pregnant women, the aged, the sick and the malnourished. We need to know how "good", "popular" and "safe" foods (in people's terms) are distributed among them by the social context. Further: do the gender biases within the family also affect the availability of safe food? Do adult, money-earning males routinely receive the food safest in people's eyes? What is the general "path diagram" of safe foods found within the households of a region or society?

As part of the promotion of food safety within the family, some sociocultural biases must also be reduced by achieving improved networking between (a) the specialist and the target groups, (b) between target groups and the households and (c) between the scientists, the policy makers and programme administrators. While engaged in such an effort, we become particularly aware of the actual divergent priorities that specialists may develop among themselves, and the specialists and governments may continue to hold on to, despite the semblance of coordination. For example, some specialists (e.g. public health workers and physicians) may promote more active (interventionist) roles in the community than some others (e.g. some social scientists, who generally incline to observe, evaluate and debate interventions). In such a circumstance some of the precautionary steps necessary to emphasize for food safety project research are:

- (1) food safety should be accorded appropriate priority even in the face of political significance of famines, droughts and severe malnutrition deaths;
- (2) food safety research and its promotion require, like any other major public welfare programme, adequate networking, back and forth, among specialists, and between specialists and governments, to reach non-conflicting sets of goals and priorities, action plans and implementation strategies;
- (3) networking should not stop at this point but continue equally seriously with people and their intrahousehold communication structures, to ensure coordination with people's sociocultural notions, priorities and practices about food safety and its promotion by target groups; and finally,
- (4) networking is a thoroughly two-way process of communication among all the major players helping to secure or promote food safety from within households to international experts; anything less will only leave gaps in the research and the implementation of action programmes.

In a comprehensive, life-oriented perspective, availability of safe food must become a basic measure of quality of life for the human world over. We will return to this subject in the conclusion of this paper.

### Preliminary measures of food safety

Essentially, the major qualitative and quantitative measures of food safety come from two directions -- domestic and extra-domestic. The latter includes all government-enforced regulations of food safety, whether it is in a developed or a developing society. Measures of improvement in this sector concern how effectively governments regulate food safety, whether directly or indirectly, and with or without a definite place of private -- individual and familial -- initiative for food safety. Our concern in this article has been, however, primarily with domestic food safety, and the state controls for food quality regulation affect it often indirectly, especially in developing countries. In any case, the obvious chain of formal -- legislative and/or administrative -- recommendations start with international economic agencies and political constraints on one hand, and with national, state and local regulations, on the other. Networking between all these levels is necessary until it culminates in actual promotion of everyday intra-household food safety behaviour.

Within the household, the hierarchy of sectors in terms of which food safety improvement (or its lack) may be measured are:

- (a) the range of food safety behaviour during pregnancy and the priority given to "safe" and "special" foods for neo-natal care;
- (b) the quality of hygiene associated with child feeding practices;
- (c) the quality of old-age personal hygiene and the feeding/eating care;
- (d) the daily practices of adult food safety behaviour;
- (e) the content of food safety awareness for market-bought cooked foods;
- (f) the cultural sense and knowledge about domestic sanitation and interpersonal hygiene; and
- (g) the frequency of intra-family socialization on food quality, personal health and family welfare.

Such a priority scale variously recombines the essentially dual -- sociocultural and health -- concerns. Two precautions are, however, necessary: first, the health educator should not assume and assert that the household members in villages practice little else than the age and gender discrimination in feeding and care of the mother and the child; second, the health educator needs to be sensitive to the overall way the household members accord attention to the foods and feeding of the mothers, infants and the aged. Developed in this way, the specialist's measures will be not only culturally sensitive but, in anthropological terms, a more accurate instrument for the measurement of peoples' responses to food safety programmes.

### As a measure of quality of life

In summary, the general significance of food safety issues needs to be equally emphasized for all human societies. It should be considered closely correlated to food and nutrition issues on one hand, and to primary health, hygiene and sanitation, on the other. This is particularly to be emphasized since food safety, without the adequate emphasis that it deserves, can fall between those two "stools". Moreover, an economic and philosophic rationale needs to be developed to show that (a) a food safety programme is actually more cost efficient for both nutrition and public health programmes than if it was not there; and (b) humans all over the globe should not only have access to adequate food but also simultaneously to adequately safe food.

If the quest for, and critical health value of, food safety increases in direct proportion to poverty and hunger in developing societies, it becomes complicated and more difficult to ascertain as the food technologies intervene in industrial societies to reconcile health goals with those of economic profit and mass food processing and

standardization (see Goody, 1983). If technologies sanitize foods of bacterial contaminants, they also add, as they develop, chemical "adulterants", rather than additives, as an author recently noted (for a popular publication see Griggs, 1986). The point therefore is that food safety raises issues of the quality of life in different ways in the developing as well as the developed societies. In both types of societies, however, the intrahousehold concern for safe food is basically the same: parents want food sufficiency, safety and satisfaction for their children, themselves and their close relatives.

In order to carry forward such shared concerns, we should consider, I propose, food safety as a standard socioeconomic marker of quality of life. For safe food controls and eradicates infectious diseases and malnutrition for the poor, and tends to reduce the risks of "modern diseases" (e.g. heart disease, high blood pressure, cancer, etc) for those industrialized and affluent. The term "safe food" must include both conditions in order to be morally persuasive and scientifically convincing to all the different people's of the world.

APPENDIX

Some relevant criteria for intrahousehold food safety research

1. Cooking and cuisine

An understanding of what people consider to be "cooking" (i.e. including but not limited to the application of heat to food) is necessary for food safety research.

Culinary habits and preferences that require careful fieldwork data by season, occasion, sex, age and social status of eaters are:

- 1.1 items incompletely cooked for taste (partial precooking; whether ageing is regarded as incomplete or complete cooking);
- 1.2 all uncooked, raw foods eaten with meals or casually (e.g. eating of radishes, greens, fruits, "rough foods", etc);
- 1.3 all overcooked, "brown or charred black foods" eaten for taste -- as culinary delicacy (with unhygienic post-cooking storage);
- 1.4 all foods that are considered edible without:
  - washing/peeling (processing);
  - application of heat;
  - preservation (salting, curing, etc).
- 1.5 all items considered edible that have:
  - visible diseases, worms, rusts, pests, etc;
  - dirt and dust on them as part of the food cooking procedure; and
  - incomplete, insufficient and inadequate washing;
- 1.6 foods eaten for taste with:
  - incomplete or uneven heating or chilling;
  - contaminants (as culturally designated taste enhancers);
- 1.7 all foods "cleaned" and "cooked" with infected water, spices and preservatives, etc;
- 1.8 all unheated milk products and milk preparations (including how, and where, they are stored before consumption).

2. Post-cooking storage

Note: duration, containers and storage areas within the house usually determine the quality of storage in various societies. But all the markers listed below usually have locally valid cultural definitions and/or measures;

2.1 Duration:

- |               |   |
|---------------|---|
| <u>Long</u>   | - until stale, cold and rotten (pickles, preserves and condiments);                   |
| <u>Medium</u> | - until optimum, lukewarm and "tasty";  |
| <u>Short</u>  | - cooked and eaten during the same cycle; same part of the day or only until "fresh". |

2.2 Conditions of storage

- covered storage -- loosely covered, sealed (airtight) or incompletely sealed;
- with or without touch by human hands;

- open storage (where harmful agents or carriers considered as culturally neutral -- flies, mice, cockroaches -- are allowed to come and go).

### 2.3 Containers

- Type
- porous -- including pottery, leaf, gourds, wooden;
  - semi-porous -- fired and glazed pottery, china;
  - impervious -- steel, metal (copper, brass, bronze, aluminium), alloys, glass, plastic;
- Note: the idea of "wrong" or "right" containers may be by material, food, cooking, spices and duration of storage.

- Cleaning
- dirt (top layer of soil);
  - clay (special);
  - ashes (from hearth);
  - soap;
  - a combination of the above.

- Duration
- until broken;
  - by rotation;
  - by seasonal variation (e.g. earthenware for storage of water in tropics).

### 3. Feeding and eating

#### 3.1 Feeding

- modes of child-feeding -- times, durations, relationship of feeder and his/her habits of preventive hygiene (e.g. washing hands cleaning nails);
- modes of feeding the sick -- frequency, feeder and the steps of preventive hygiene;
- modes of feeding the old -- frequency, feeder and the step of preventive hygiene;
- modes of adult commensality (i.e. eating together) and associated hygienic practices during formal occasions, daily meals and casual eating.

#### 3.2 Eating

- eating with fingers and/or spoons (habits of personal hygiene);
- types of eating (e.g. snack vs. main meals and the associated ideas and practices about the clean and the unclean);
- variations in personal eating habits among household members permitted by age, sex and occasions.

### 4. Domestic sanitation and personal hygiene

#### 4.1 Domestic sanitation:

- daily washing and cleaning habits of men/women for foods, utensils, water containers kitchen and food storage areas;
- storage of left-over foods:
  - . location within the house (e.g. by food type, cooking, quantity, etc);
  - . containers used -- with covering and without covering;
  - . positions of shelves, niches, corners and their separation from drains, flies, rodents and other domestic pests and pollutants;
- locations and modes of domestic waste disposal:
  - . locations of open drains vis-a-vis kitchen, water storage;
  - . garbage cans or corner dumps;
  - . children's open-air, drainside spots for evacuation;
  - . locations of latrines and urinals.

#### 4.2 Personal hygiene -- daily personal cleaning washing habits:

- . after evacuation (especially for nails and hands);
- . during food distribution and sharing;
- . before snacks;
- . while eating from roadside food vendors.

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