Source: **Ben Mepham** (2010) This invited chapter was published in ***Food Ethics*** (edited by F-T Gottwald, H W Ingensiep and Marc Meinhardt). Published by Springer, New York, Dordrecht, Heidelberg (2010) (Chapter 2: pp. 17-29).

THE ETHICAL MATRIX AS A TOOL IN POLICY INTERVENTIONS: THE OBESITY CRISIS

Excerpt from the Editorial

Ben Mepham, professor and director of the Centre for Applied Bioethics at the University of Nottingham, UK has a great deal of experience in teaching bioethics and has been an investigator in the new field of Food Ethics for more than 30 years. Mepham coined the concept 'Food Ethics' and developed an important ethical tool, the so-called 'ethical matrix' (Mepham. 1996). As a scientist he understands the basis of the biomedical ethics approach of Beauchamp and Childress (2008) and for the biosciences he published the textbook 'Bioethics: an introduction for the biosciences' (2005). The author's contribution addresses the issue of how governments of democratic states might seek to assist their citizens in reversing the serious trend towards overweight and obesity. Effective policy interventions need to be implemented on several fronts. The case study demonstrates the possibilities and arguments within the framework of Mepham's influential 'ethical matrix' as both a procedural and a substantive tool in such programs, focusing on food production, marketing and consumption.

Abstract

The chapter addresses the issue of how governments of democratic states might seek to assist their citizens to reverse the serious trend towards overweight and obesity. Recent reports have stressed the contributory role of the obesogenic environment that characterises contemporary UK society, and suggested that to be effective policy interventions need to be implemented on several fronts. The chapter explores the multidimensional capabilities of the ethical matrix as both a procedural and a substantive tool in such programmes, focusing on food production, marketing and consumption.

2.1 Introduction

It is apparent that our rapidly changing world is now revealing, with startling regularity, a succession of developments which, although when viewed in retrospect seem to have been emerging gradually over a substantial period of time, now threaten to assume critical status within a few years. A prominent example is the impending epidemic of obesity, which in the UK is predicted to present a challenge comparable to that of global warming. Employing this as a case study, equally applicable to other advanced Western states, how should the UK government address this crisis? Recognising the seriousness of projected developments, but also conscious of the rights of individuals to choose their own lifestyles, in what ways and to what extent is it acceptable for the activities of citizens to be shaped by government policy?

As noted by Rawls (1993), modern liberal democracies are characterised by their accommodation of a plurality of reasonable, but to a degree, incompatible doctrines. While democratically-elected governments may presume legitimacy for their policy initiatives, it remains important, from both utilitarian and deontological perspectives, to ensure that interventionist policies affecting society as a whole are compatible with commonly accepted ethical standards. This is even more necessary where, as is often the case, governments are elected by a minority of the electorate. My aim in this chapter is to explore the value of a conceptual tool, the ethical matrix, in addressing these issues.

The ethical matrix was introduced in 1996 in order to facilitate ethical deliberation and decision-making. Based on the notion of the *common morality*, its principal aim is to assist non-philosophers to appreciate the value of ethical insights in arriving at well-considered ethical judgements. In accord with the approach adopted by Beauchamp and Childress (2001) in the field of biomedical ethics, it appeals to *prima facie* principles, which are derived from both consequentialist and deontological theory. According to this approach, Table 1 illustrates a generic ethical matrix, which has relevance to decision-making in relation to food and agriculture: for use in particular circumstances the principles need to be 'specified' according to the overall context. Accounts of the

associated theory and practice are to be found in a number of publications, notably those by Mepham (1996; 2000a; 2000b; 2001; 2005a, 2005b; 2005c and 2006); Mepham and Tomkins (2003) and Mepham *et al* (2006). Other important applications include those of the Food Ethics Council (see http://www.foodethicscouncil.org/), Kaiser and Forsberg (2001), Chadwick *et al* (2003); and critical appraisals of the method are provided by Schroeder and Palmer (2003) and Forsberg (2007). A response to some of these criticisms was published in Mepham (2004).

Since its inception, I have used the ethical matrix (hereafter EM) extensively; and it has also been used widely in collaboration with academic colleagues and by other groups. Not only has my own employment of the EM evolved and taken on different forms in different circumstances, but it also been subjected to criticism and subsequent modification by other users. The result is that it is questionable whether use of the EM amounts to a methodology *per se*, or whether it is essentially an *approach* to ethical deliberation. But while no proprietary rights are claimed over the EM, and informed criticism is welcomed, it seems important to correct misapprehensions as to its intended use and value when these arise (see Mepham, 2004), and when appropriate to provide stronger evidence to support its main tenets and develop its potential uses. The particular development here is concerned with ethical justification of certain public policy decisions. This is not an entirely novel type of application, because while in earlier exercises the focus was on ethical evaluations of new biotechnologies, rather than on their political implementation, some analyses have been more explicitly directed to policy issues. Even so, this chapter will explore a previously unexamined approach.

My earlier accounts of the EM have acknowledged the role in its development of ideas advanced by John Rawls - an approach which has, however, been challenged by Forsberg (2007). Here, I want to underline the perceived relevance of Rawls' thinking by examining the close association between my current ideas on the EM and the revised notion of *justice as fairness*, which Rawls expressed in a restatement of his theory, written shortly before his death. He began by identifying four roles or objectives of political philosophy, which may be summarised as follows:

1) provision of "*a focus on deeply disputed questions, to see whether, despite appearances, some underlying basis of philosophical and moral agreement can be found*"

2) provision of "*a unified framework within which proposed answers to divisive questions may be made consistent and the insights gained from different kinds of cases can be brought to bear on one another…*"

3) recognising the "*fact of profound and irreconcilable differences in citizens' reasonable comprehensive and philosophical conceptions of the world, and their views of the moral and aesthetic values to be sought in human life*" to try to reconcile them "*by showing the reason and indeed the political good and benefits of* (such reconciliation)"

4) promotion of the view that "*political philosophy is realistically utopian; that is,* (it probes) *the limits of practicable political possibility*." (Rawls, 2002, pp.3-4)

From my perspective, the structure, aims and modes of use of the EM may reasonably be said to resonate with these roles and objectives, as defined by Rawls. Thus, referring to the above numbering, in several diverse settings the framework (2) has proved valuable in focusing on contentious issues (1), by employing a strategy which assesses how far ethical ideals are met by proposed changes (4) and sometimes discovering an 'overlapping consensus' (Rawls, 2002) despite marked differences in people's moral values (3). According to this view, the starting point for ethical analysis is the formulation of a set of *prima facie* principles that are deemed evident in the *common morality*, but for which no weighting is assigned, and consequently to which prospective users can attach as much significance as is deemed appropriate (which in some cases might be 'zero'). According to Gillon (1998), the principles used in the EM provide *'a transcultural, transnational, transreligious, transphilosophical framework for ethical analysis*' by allowing differences of emphasis within a scheme of universal applicability. Despite the suggestion that structuring the process of deliberation by employing these principles may bias outcomes (e.g. Fraser, 2001), no compelling alternative approaches appear to have been proposed. On the contrary, most feedback from participants in workshop exercises has been strongly positive (Mepham and Millar, 2001).

The EM has been used by individuals and groups in numerous settings. Forsberg (2007) appears to suggest that the only valid way of using it is as a tool employed in a deliberative process involving a wide range of stakeholder representatives (designated the 'bottom-up' approach in Mepham *et al*, 2006). Such exercises are certainly valuable. Indeed, the practice was initiated with colleagues at Nottingham (e.g. Mepham and Millar, 2001); but they do not circumscribe the usefulness of the EM. Moreover, they encounter many practical constraints, such as

those relating to time, cost and selecting appropriately representative groups of participants. In the current context, the aim is to explore use of the EM by policy-makers in formulating public policy. Of necessity, the decisions they make need to take account of a range of political and economic considerations that might well exceed the competence of many stakeholders to assess adequately.

Respect for	**Wellbeing**	**Autonomy**	**Fairness**
Producers	Satisfactory income and work	Managerial freedom	Fair trade laws
Consumers	Safety and acceptability	Choice	Affordability
Treated Organisms	Welfare	Behavioural freedom	Intrinsic value
Biota	Conservation	Biodiversity	Sustainability

Table 1 *A generic ethical matrix for use in issues concerning food and agriculture. Cell contents are specifications of the prima facie principles for each interest group.*

2.2 Obesity in the UK

As noted by a UK government Foresight report (Department for Innovation, Universities and Skills, 2007) "*Being overweight has become a normal condition, and Britain is now becoming an obese society*." It does not appear to be a question of people having less willpower than earlier generations, or having become more gluttonous, but rather of profound changes having occurred in society over the last 50 years - which have impacted on work patterns, transport, food production and sales, recreational and leisure activities. Such changes have exposed the underlying biological tendency for many people to put on weight and to retain it, so that currently 25% of adults are assessed, according to their *body-mass index* (BMI) as 'obese'.[1] And while that might seem to be merely a cosmetic problem, in fact, overweight and obesity increase the risk of a wide range of chronic disease conditions, such as hypertension, cardiovascular disease (including stroke), type 2 diabetes and cancer. Wellbeing can also be seriously impaired by physical incapacity, social stigma, low personal esteem, and a generally low quality of life. Such trends are evident in many countries, and are already perhaps most pronounced in the USA (where 39% of the population is classed as obese), but within the EU the UK is at the forefront of this regrettable trend, with authoritative predictions suggesting that 60% of Britons will be obese by 2050.

Not only are there serious consequences for individuals affected by obesity, but the economic implications are also projected to be substantial. For example, in the UK the costs to the National Health Service (NHS) attributable to overweight and obesity are predicted to double to £10 billion p.a. by 2050. But these are not the major costs, because the wider financial impacts on society and businesses (e.g. in terms of lost productivity) are anticipated to reach (at current prices) £50 billion p.a. (Department for Innovation, Universities and Skills, 2007).

Clearly, at the physiological level, obesity is a consequence of more food energy being consumed than is expended in physical activity. This excess energy is laid down as fat, and when the process continues over a substantial period the result is an increase in BMI., which is first manifest as overweight and then as obesity. When, as in the immediately post-war period of the 1950s, there was a shortage of food - and physical energy was expended in activities such as manual work, cycling and outdoor sports, the way in which most people lived was conducive to weight maintenance within the 'normal range.' By contrast, in the UK most people now live in an *obesogenic* environment, in which work and leisure activities are largely sedentary, much transport is motorised (while escalators and lifts have replaced stairs), and low food prices and persuasive advertising (together with peer group pressure) encourage overeating of *high sugar, salt and fat foods* (hereafter referred to as HSSFF). It is evident that the problem of obesity is highly complex, and not likely to be effectively addressed by simply exhorting people to 'eat wisely.' Rather, the fact that the *drivers* of the condition are deeply embedded in the way modern society has been constructed would seem to call for comprehensive approaches entailing government intervention. The recognition of this social responsibility has led recently to a number of prominent UK enquiries (e.g. Department

[1] Obesity is generally assessed on the basis of the *body mass index*(BMI), defined as body weight (kg) divided by height (m).[2] The World Health Organization (WHO) defines 'normal weight' as a BMI of 18.5-24.9, 'overweight' as a BMI of 25.0-29.9, and 'obese' as a BMI of over 30.0.

for Innovation, Universities and Skills, 2007; Nuffield Council on Bioethics, 2007;[2] Sustainable Development Commission 2008; Department of Health, 2008).

2.3 An Ethical Approach to Policy Decisions

Of the above reports, that of the Nuffield Council on Bioethics is the only one to specifically address obesity (and other public health issues) from an ethical perspective. Its insights provide some valuable guides to how policy might be shaped, which it is an aim of this chapter to augment, amplify and, where appropriate, criticise. The justification for this objective, when so many reports on obesity have already been published, is that of providing specifically *ethical* grounds for policy decisions that appeal to principles encompassed by the common morality.

The Nuffield report emphasises the role a *stewardship model* according to which governments have an obligation to provide conditions that allow their citizens to be healthy - part of which entails efforts to reduce inequalities in health within the population. While recognising the need to respect personal choice (e.g. by avoiding coercive or intrusive measures that have not received appropriate consent), the Nuffield report considers that in order to protect the vulnerable (e.g. children and disadvantaged adults) various policy interventions may be ethically justifiable. Depending on the seriousness of the issue, the authors of the report consider that the options implemented might be best considered as 'rungs on an intervention ladder,' with the least intrusive entailing no more than monitoring a situation (e.g. the incidence of obesity in different socioeconomic groups) while the most intrusive might entail legal measures to ban a certain foodstuff.

These are useful perspectives, but they omit some important considerations. Use of the EM can clarify the situation by identifying what ethical concerns are at stake at different points in the food chain, from 'field to fork,' and how the needs of different stakeholders would be affected by specific policy interventions. My previous use of the EM has concentrated on its heuristic potential, by means of which users are invited to specify the principles in ways appropriate to their interpretation of the issues and assess anticipated impacts of innovations on the degree of respect these principles are accorded. Readers of this chapter are referred to the references listed above for fuller accounts of the theory and recommended practice in using the EM. Others have amended the approach by employing a *project matrix* (Chadwick *et al*, 2003) or distinguishing between a *value matrix* and a *consequence matrix* (Forsberg, 2007) - changes which can lead to substantially different approaches, e.g. in which the cells instead of specifying principles contain questions (e.g. Forsberg 2004).

Here, I introduce two new forms of matrix, each applicable at a different level of an ethical analysis. These are:

- a specified principles matrix (SPM): see Table 2, and
- a policy objectives matrix (POM): see Table 3

With reference to these tables, the abbreviations used below identify specific cells (e.g. SPM/PW refers to *producer wellbeing* in the *specified principles matrix*).

In the SPM the object is to identify (groupings of) coherent interest groups and the idealistic objectives to which observing the principles (respect for wellbeing, autonomy and fairness) might reasonably aspire - in line with the Rawlsian strategy identified above (number 4). But since these are *prima facie* principles it is almost inevitable that some will take precedence over others, a situation which typically characterises policy decisions, and demands transparent justification. The compositions of the different groups are based on the concept of broadly similar objectives, e.g. in the case of *producers*, all are involved in the growing and manufacture of food, including associated activities, such agrochemical production, butchery and haulage: some people in these categories will live in less developed countries.

Clearly, there are wide differences in the circumstances of different groups identified, to which policy makers would need to pay due attention. In the form of EM employed by Kaiser and Forsberg (2001), selected participants in a deliberative exercise were invited to construct a matrix by deciding how respect for the different principles (which were, however, proposed by the organisers) was to be specified. The risk in such a procedure is that participants may limit their perceptions of desirable outcomes to what seems 'realistic' in the prevailing circumstances. In contrast, reference to idealistic principles has more chance of guaranteeing that ethical criteria are prioritised, rather than marginalised by overriding practical limitations. In line with Rawlsian principles (see

[2] The author's submission to the Nuffield Council on Bioethics public consultation exercise may be viewed at: http://www.nuffieldbioethics.org/fileLibrary/pdf/Professor_Ben_Mepham001.pdf

number 2 above) the explicit statement of specified ethical principles facilitates the possibility of discovering whether "*some underlying basis of philosophical and moral agreement can be found."* Of course, ultimately, practical considerations inevitably play a major role in policy-making, but according to this analysis their consideration is appropriately deferred until a later stage.

Even so, it must be conceded that appealing to 'ideals' allows room for significant differences of interpretation. For example, the term 'satisfactory' with reference to income (Table 2, SPM/PW and SPM/MW) begs the question of how this criterion should be defined. It is clearly impossible to stipulate absolute standards, so that perceived comparability with other incomes is likely to influence notions of 'satisfaction.' Another consideration is the extent to which people engaged in activities now considered harmful (such as producing or selling HSSFF) are culpable of irresponsible behaviour, or whether the market arrangements that have allowed them to lawfully engage in such activities amount to ethical endorsement. In the latter case, governments might be said to have a duty of reparation if policy changes were to penalise them.

Society members is a term employed to acknowledge the fact that obesity is a condition only affecting a proportion, albeit an increasingly significant proportion, of (the global) society, but that respect for wellbeing, autonomy and fairness demands equal attention for everyone. In the current formulation (which it is emphasised is intended to be illustrative rather than definitive), the interests of *future generations* of living beings are included (hence the significance of *sustainability* in cell SF). It might also be considered appropriate for this interest group to include ethically-considerable non-human living organisms (which were designated 'biota' in Table 1). However, their marked differences from humans might reasonably suggest to most people that they should be assigned to a separate category - and they are excluded from Table 2.

Respect for	**W**ellbeing	**A**utonomy	**F**airness
Producers of food**:** farmers and associated workers; food manufacturers; food processors	Satisfactory income and work from producing less obesogenic food	Self-determination	Fair trade laws
Marketers of food: wholesalers; retailers; restauranteurs; advertisers	Satisfactory income and work from selling less obesogenic food	Free market	Fair trade laws
Consumers at risk of obesity	Reduced risks of obesity and associated diseases	Informed food choice	Equality of opportunity e.g. in access to healthy food
Society members	Health and prosperity of global population	Diversity	Sustainability

Table 2 *A proposed specified principles matrix (SPM) pertinent to addressing obesity, which specifies the ideals which policy decisions concerning food production, marketing and consumption might aspire to respect*.

In summary, the SPM proposes a way in which fundamental ethical principles, which were presented differently in Table I, may be specified in the context of policy issues relating to obesity. In that the specifications are highly generalised it might be anticipated that they would find support from a substantial majority of people, even acknowledging the "*plurality of reasonable, but to a degree, incompatible doctrines*" that characterises modern liberal democracies.

2.4 Impacts on Policy Formulation

A central plank of the Nuffield report's analysis was the need to protect vulnerable groups (e.g. infants, senile people, those suffering from addictions) from harm, a motive that is represented in one form of POM (Table 3) by cells CW, CA and CF. The primary aim here is propose a structured framework by which ethical principles

may be translated into policy objectives. Representation in a matrix facilitates assessment of the relative ethical claims of competing interests, and can make explicit the weighting that is deemed appropriate in the subsequent formulation of policies. By bringing ethical considerations to the fore, it acts as a substantive ethical tool; and by requiring policy-makers to articulate their assessments of impacts on each cell of the matrix, it acts as a procedural tool.

It is important to note that Table 3, which is limited to factors directly affecting food production, marketing and consumption, represents just one of a number of forms of POM that would need to be constructed to comprehensively address different aspects of the obesity crisis. For example, the obesogenic environment is susceptible to amelioration by numerous policies, which relate, *inter alia*, to provision of sports facilities, cycle tracks, modification of the design of buildings, and educational curricula at both school and adult levels. Moreover, when the ethical principles are universalised, so as to apply to the global society (perhaps including morally considerable non-human living organisms), it becomes apparent that measures that seek to address obesity should be considered alongside all other considerations affecting life on Earth, now and in future.

The POM illustrated in Table 3 seeks to define relevant ethical principles in policy-oriented terms that address issues concerning food. But the specifications clearly fall far short of stipulating any actual policy recommendations. This follows from the observation of Gillon (1998) that the principles '*are general guides that leave considerable room for judgement in specific cases and that provide substantive guidance for the development of more detailed rules and policies.*' Thus it might appear that the analysis has little direct impact on ethical policy formulation. However, that assessment would overlook several important considerations.

Firstly, such an analysis should provide invaluable stepping stones to the achievement of a Rawlsian 'overlapping consensus' (Rawls, 2002). In contrast, very few policy decisions to date have attempted to appeal to ethical principles, other than (probably unwittingly) to a form of utilitarian cost/benefit analysis. Secondly, whether or not consensus proves possible, appropriate use of the SPM and POM can provide explicit ethical justification for whatever policy decisions are ultimately made. This is because, when used conscientiously, the EM (in the various forms described here) is capable of facilitating the formulation of judgements that are comprehensive in scope, explicit in articulation, transparent in terms of their justification, and arrived at by a process of rational deliberation.

Respect for	**W**ellbeing	**A**utonomy	**F**airness
Producers of food**:** farmers and associated workers; food manufacturers; food processors	Legislate/regulate to significantly reduce production of obesogenic foods, by diverting production to healthier products	Protect innovative and entrepreneurial practices	Promote fair trade
Marketers of food: wholesalers; retailers; restauranteurs; advertisers	Legislate/regulate to significantly reduce sales of obesogenic foods, by diverting sales to healthier products	Protect innovative and entrepreneurial practices	Promote fair trade
Consumers at risk of obesity	Promote healthier lifestyles to avoid obesity, by encouraging healthy eating	Cultivate informed food choices through education	Ensure equality of access to healthy food and nutrition education, so promoting a healthier lifestyle
Society members	Provide facilities to promote wellbeing	Promote toleration of infirmity and disability through education and non-discriminatory practices	Ensure availability of sustainable supplies of healthy food through long-term planning

Table 3 *A policy objectives matrix (POM) indicating some (speculative) proposals relating to food production, marketing and consumption.*

But, thirdly, because ethical considerations necessarily permeate *all* subsequent policy decisions (although this is not widely appreciated), subsequent use of forms of the EM can have an explicit bearing on how the specified policy proposals in Table 3 might be implemented. This claim will now be examined.

2.5 Deciding on Ethical Policies

The Nuffield report refers to a 'ladder of policy intervention,' whereby governments in the interests of acting as stewards of their citizens' interests may legitimately take increasingly intrusive measures (e.g. affecting food producers, on the one hand, or obese individuals, on the other) to rectify adverse impacts on public health. What this implies, although it is not stated explicitly, is that political change is to be effected by the exercise of power. In his illuminating work 'The Anatomy of Power', J K Galbraith (1984) identified three ways in which power is exerted (e.g. by individuals, companies and governments):

- *condign power*: the imposition undesirable consequences if behaviour is not changed as required
- *compensatory power*: rewarding (often financially) those who accede to requests to change behaviour
- *conditioned power*: the exercise of persuasion and education to change behaviour

Each has its malign aspect (represented e.g. as malicious threats, bribery and brainwashing, respectively), but each also can (and perhaps, *must,* at some level) play a benign role in policy formulation. However, from an ethical perspective, it is important to consider whether recommendations to exert political power by any of these means are justifiable in terms of their impacts on respect for principles specified in the EM.

For example, with reference to Table 3, the interests of children assume paramount importance because of their intrinsic naivety and hence vulnerability to advertising campaigns that promote consumption of HSSFF, coupled with the high risk that early onset obesity will become a permanent condition. In such a case, respect for advertisers' *prima facie* rights to exercise 'innovative and entrepreneurial practices' (Table 3, cells PA and MA) might well be considered justifiably overridden by necessary measures taken to respect CW, CA and CF. It seems that achieving the desirable outcome of reducing childhood obesity rates will inevitably entail the exercise of (or some combination of) condign, compensatory or conditioned power. The question is: 'Can this be achieved while also respecting PF and MF (Table 3)?'

Examples of strategies aimed at reducing childhood obesity are: i) requiring schools to introduce low HSSFF menus, ii) banning sale of HSSFF in the vicinity of schools and in school vending machines, iii) restricting advertisements of HSSFF on television, and iv) subsidising retailers to sell fresh fruit and vegetables. These are all what have been called 'command and control' regulations, which imply that professional health experts are certain of the answers to the obesity problem. Given the failure of such strategies in the past, the effectiveness of this approach is highly questionable. However, a sounder policy, from both ethical and practical perspectives, may be *performance-based regulation*, which assigns significant responsibility for causing obesity to the large food companies that sell HSSFF (Sugarman and Sandman, 2007).

According to this approach, companies would be required to 'put their own house in order' by reducing HSSFF in proportion to the extent to which they are calculated to have contributed to the problem. Internalising cost in this way, by requiring manufacturers to bear the cost of their activities (in a manner analogous to the 'polluter-pays' principle) is a practice used by economists to justify industry regulation; and it has the additional benefit of reducing the burden on taxpayers in a way that could be seen to respect the principle of fairness. It also has the advantage that industry's 'innovative and entrepreneurial skills' (Table 3) will be given full reign within a commonly agreed constraint (i.e. on a 'level playing field'). Various form of POM might here be valuable tools in arriving at ethically-sound policies.

Another instance, which was overlooked in the Nuffield report, where policy decisions might make a major impact on public health, concerns the production of HSSFF. Partly, this is a result of agricultural practices that are financially rewarded for producing fatty foods, mostly of animal origin (Crawford and Ghebremeskel, 1996), and partly it is due to food manufacture and processing practices. According to a recent report, in the USA the supply of food exceeds the need for it by about 50% (Tong, 2004), and while no comparable data have been obtained for the UK it seems unlikely that the situation is substantially different. To avoid concentrating on 'end of pipe' solutions, measures to limit production of excess, and excessively unhealthy, food supplies, would seem to be an important aspect of policies aimed at countering obesity. Here again, structuring analyses on forms of POM may prove valuable.

Finally, it is important to appreciate that the definition of the *boundaries* of any ethical analysis exerts an overriding influence. For example, in Table 3 the somewhat opaque expression *Society members* is capable, as indicated above, of being taken to represent the global society as a whole (including human and non-human lives, now and in future) or, as is perhaps more usually the case, members of a nation state - which it might be considered presents a task that is challenging enough on its own. Yet increasingly we are being forced to address problems from a global perspective, notably in dealing with the threats posed by global warming. So it would not be surprising to discover, in view of the increasing globalisation of food markets, that the only authentic approach to devising an ethical food policy, is one which recognises that the millions of people suffering malnutrition as a result of obesity are matched by an equal number of malnourished people who are chronically underfed. Consequently, respect for global justice would seem to demand nothing less than a global ethical food policy (see Follesdal and Pogge, 2005).

2.6 Conclusions

In this chapter I have argued that to win support for policy interventions aimed at reducing obesity, they need to be formulated on the basis of ethical decisions that prioritise public health. In conformity with recommendations of the Nuffield report, the UK government should adopt a stewardship model to protect the interests of the most vulnerable and seek to achieve equality in society, without overruling responsible personal choice. Use of the ethical matrix in the forms outlined here (as *specified principles*- and *policy objectives-matrices*) could provide a conceptual tool (serving both substantive and procedural roles) to arrive at transparent and ethically justified public policy decisions.

The chapter has both bold ambitions and modest ambitions. They are bold in suggesting that all policy decisions that involve consideration of social, biological and environmental concerns should entail a form of ethical evaluation that would be facilitated by employing appropriate ethical tools. They are modest because, within the limitations of a short article, the proposals concerning the use of the ethical matrix as such a tool have been merely suggestive of a mode of analysis, leaving many questions unanswered.

References

Beauchamp T L and Childress J F (2001) Principles of Biomedical Ethics (5th edition). New York and Oxford, Oxford University Press

Chadwick R, Henson S, Moseley B, Koenen G, Liakopoulos M, Midden C, Palou A, Rechkemmer G, Schröder D, and von Wright A (2003) Functional Foods. Berlin, Springer-Verlag

Crawford M and Ghebremeskel K (1996) The equation between food production, nutrition and health. In: Food Ethics. (Ed. B. Mepham) London, Routledge. pp. 64-83

Department for Innovation, Universities and Skills (2007) Foresight, Tackling obesities: future choices- project report. London, Department for Innovation, Universities and Skills

Department of Health (2008) Heathly weight, healthy lives: a cross-governmental strategy for England. London, Department of Health

Food Ethics Council (2008) http://www.foodethicscouncil.org

Follesdal A and Pogge T (2005) (Eds) Real World Justice. Dordrecht, Springer

Forsberg E-M (2004) Ethical assessment of marketing GM Roundup Ready rape seed GT73. In: Science, Ethics and Society (Ed. J de Tavernier and S Aerts) preprints of 5th EURSAFE congress, Leuven, Belgium. pp. 177-180.

Forsberg E-M (2007) A deliberative ethical matrix method - justification of moral advice on genetic engineering in food production [Dr Art dissertation] University of Oslo

Fraser (2001) What is the moral of the GM food story? J Agric Eviron Ethics 14, 147-159

J K Galbraith (1984) The Anatomy of Power. London, Corgi

Gillon R (1998) Bioethics: overview. In: Encyclopedia of Applied Ethics. (Ed. Chadwick R). San Diego, Academic Press. Vol. 1, pp. 305–317

Kaiser M and Forsberg E-M (2001) Assessing fisheries – using an ethical matrix in a participatory process. J Agric Environ Ethics 14, 191–200

Mepham B (1996) Ethical analysis of food biotechnologies: an evaluative framework. In: Food Ethics. (Ed. B. Mepham) London, Routledge. pp. 101-119. *Reproduced* in: Chadwick R and Schroeder D (2002) (Eds) Applied Ethics: critical concepts in philosophy. London, Routledge pp. 343-359)

Mepham T B (2000a) The role of food ethics in food policy. Proc Nutr Soc 59, 609–618
Mepham B (2000b) A framework for the ethical analysis of novel foods: the ethical matrix. J Agric Eviron Ethics 12, 165-176
Mepham B (2001) Novel foods. In: The Encyclopedia of Ethics of New Technologies (Ed. R F Chadwick), Academic Press, San Diego. pp. 299-313
Mepham B (2004) A decade of the ethical matrix: a response to criticisms. In: Science, Ethics and Society (Eds. J de Tavernier and S Aerts) preprints of 5th EURSAFE congress, Leuven, Belgium. pp. 271-4
Mepham (2005a) The ethical matrix as a decision-making tool, with specific reference to animal sentience. In: Animals, ethics and trade: the challenge of animal sentience. (Eds. J Turner and J D'Silva). London, Earthscan. pp. 134-145
Mepham B (2005b) Food Ethics. In: Ethics, Law and Society vol 1 (Eds. J Gunning and S Holm) Aldershot, Ashgate Publishing. pp.141-151
Mepham B (2005c) The ethical matrix: a framework for teaching ethics to bioscience students pp. In: Animal Bioethics: principles and teaching methods (Eds. M Marie, S Edwards, G Gandini, M Reiss and E von Borell). Wageningen, Wageningen Academic Publishers. pp. 313-327
Mepham B (2008) Bioethics: an introduction for the biosciences. 2nd edition Oxford, Oxford University Press
Mepham B and Millar K M (2001) The ethical matrix in practice: application to the case of bovine somatotrophin. In: Food Safety, Food Quality, Food Ethics, preprints of 3rd EURSAFE congress, Florence, A&Q, University of Milan, pp. 317-9
Mepham B and Tomkins S M (2003) Ethics and Animal Farming (web exercise) Petersfield, Compassion in World Farming. www.ethicalmatrix.net
Mepham B, Kaiser M, Thorstensen E, Tomkins S and Millar K (2006) Ethical matrix: manual. http://www.ethical.tools.info/content/ET2%20Manual%20EM%20(Binnenwerk%2045p)pdf
Nuffield Council on Bioethics (2007) Public health: ethical issues. London, Nuffield Council on Bioethics
Rawls J (1993) Political Liberalism. New York and Chichester, Sussex, Columbia University Press
Rawls J (2002) Justice as Fairness: a restatement (Ed. E Kelly) Cambridge, Mass and London, England, Belknap Press.
Schroeder D and Palmer C (2003) Technology assessment and the 'ethical matrix'. Poiesis Prax 1, 295–30
Sugarman S D and Sandman N (2007) Fighting childhood obesity through performance-based regulation of the food industry. Duke Law Journal 56, 1403-1490
Sustainable Development Commission (2008) Green, healthy and fair. London, Sustainable Development Commission
Tong R (2004) Taking on 'big fat': the relative risks and benefits of the war against obesity. In: 'Public health policy and ethics' (Ed. M Boylan) Dordrecht, Kluwer