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# Ethics and Participatory Water Planning

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*Greater attention needs to be given to ethics related to the use, organisation and coordination of participatory forms of water planning. Working with diverse groups of people on water management issues requires the ability to understand and collectively make a range of decisions on the content, design and implementation of participatory processes. Ethical questions and sensitivities arise in such work including issues of changing existing power structures, privacy conditions and cultural sensitivities. Existing procedures for ethics clearance and codes of ethics, conduct and professionalism aim to increase adherents' awareness of ethical issues and mitigate risks. Yet it is common in some jurisdictions involved in participatory water planning to overlook both codes and the ethical implications of the processes in which they are involved. Examples of ethical dilemmas from recent participatory water planning processes in Australia, Bulgaria and the Pacific Islands are provided to highlight challenges and suggest improvements for future practice.*

## 1. INTRODUCTION

In recent years, participation of stakeholders and coordination of multiple levels of management actions have become common requirements for successful water planning practice. Technocratic approaches to water planning in many areas around the world are being phased out in favour of participatory processes in a hope to manage water and its associated socio-ecological systems in a more sustainable manner. This "rise of participation" and switch to "sustainable development" paradigms of management has led to significant changes in practices and responsibilities of many professionals working in the water planning sector. Water managers, engineers, researchers, consultants, government officials and other stakeholders are often charged with the responsibilities of determining and collectively managing conflicts and issues arising from their differing values, beliefs, relations and practices during the creation and implementation of water management plans. This includes working through questions of the allocation and development of sustainable water systems, such as:

- Why ought a water plan be created?
- What ought to be the goals of the water plan?
- What ought to be the actions to achieve these goals?
- Who ought to be responsible for funding and implementing these actions and when?
- How ought progress towards these goals be measured? and
- How ought the plan be adjusted based on these evaluations?

Equally importantly, it also involves questions about the participatory process itself related to its design, implementation and evaluation of its effectiveness. For example, this may include debating:

- Who ought to be responsible for organizing and managing the participatory process?
- How ought the scope and purposes of the water management plan be decided?
- How ought the decision be made on who ought to participate and when?
- Which participatory methods ought to be used and why?
- Who ought to design, implement or facilitate the use of these methods with the participants?
- Who ought to analyse and synthesise the results stemming from the participatory process? And
- How ought the evaluation of the process take place and who ought to be allowed access to the raw data and final results?

All of these are questions to which there are often no easy answers, and to which many professionals in the water planning sector have not been specifically trained to handle. We have persisted with presenting the “ought” form of questioning, following the work of Ulrich (1983), where the more common phrasing using “is/are” is replaced by “ought”. This choice has been made in an attempt to stress the importance of reflecting on these questions, and in particular, their ethical aspects.

Indeed, significant work is already occurring on the first set of questions as water professionals, social scientists and philosophers become increasingly interested in local and international water issues and the societal values that underpin various approaches to water management (e.g. Loucks, 1998; EES, 1999; Ingram & Schneider, 1999; FAO, 2000; Gleick, 2000; Pahl-Wostl, 2002; UNESCO-WWAP, 2003; ADVISOR, 2004; Falkenmark *et al.*, 2004; Cech, 2005; Fleming, 2005; Hussey & Dovers, 2007). For example, sustainability and management concepts are now widespread in engineering courses, including those dealing with social or business responsibility and working with people of differing skills and values (Dandy *et al.*, 2007). Application of this theory and considered debate on the second set of ethical questions remain important challenges for improving water planning around the world.

Having highlighted a number of ethical questions related to water planning, it is useful to reflect on what “ethics” are. “Ethics” are defined by the Oxford Pocket Dictionary of Current English as “moral principles that govern a person's or group's behaviour”. When we ask if something is “ethical” we are questioning the “rightness” or “goodness” of action, as defined by personal values, reasoning and feeling or by societal norms and rules. In participatory practice, decisions are therefore likely to be made based on a variety of different versions of “right” or “good”. The study and comparison of individual and group ethics is well established with a branch of philosophy, where commonly discussed doctrines include: “the Golden Rule” of the bible - an ethic of “reciprocity”; Kant's “categorical imperative” – an ethic of “duty”; Bentham's and Mill's “utilitarianism”, which aims for the “maximisation of happiness” from actions; Sartre's and Camus' “existentialism”, which includes a range of ethics including those of “authenticity”, “disalienation” and “freedom” (Flynn, 1986); and Rawls' version of an ethic of “justice” (Muller-Merbach, 2002). In recent years, a number of other important ethical doctrines have emerged in response to increased condemnation of certain human research experiments such as those conducted by the Nazis during World War II, increased environmental degradation and increased social conflict over existing technocratic or dictatorial management regimes. In particular: bioethics which includes the concept of “beneficence” where the potential benefits of an action should outweigh the risks, as well as the protection of “human dignity”; the “ethic of care” stemming largely from feminist thought, which focuses on the importance of human relationships; a range of environmental ethics including those based on principles of the deep ecology, conservation and ecofeminism movements (Feldman, 1995); and the communicative, discursive, participative and critical ethics linked to recent study of democracy, political theory and participatory intervention research (Foucault, 1980; Habermas, 1984; Forester, 1993; Freire, 2001; Cahill *et al.*, 2007).

In this paper, our aim is to examine the applied aspects of ethics in the practice of participatory water planning. We therefore start by outlining the extent of typical interactions between ethics and participatory water planning practice, which includes the codes of ethics and professional practice guidelines to which engineers, government officials, researchers and other professionals are required to adhere. We then go on to highlight the types of dilemmas that may arise in the practice of participatory water planning. These dilemmas and other ethical issues are further highlighted and discussed using examples from three recent participatory water planning exercises in Australia, Bulgaria and Kiribati. We end with a number of key insights for future consideration of ethics in participatory water planning.

## 2. CODES OF ETHICS AND PROFESSIONAL PRACTICE FOR PARTICIPATORY WATER PLANNING

Many people taking part in participatory water planning activities and their organisation will be bound by one or multiple codes of ethics and professional practice. They must also respect a range of laws and international agreements. In particular, engineers, public servants, researchers, lawyers, accountants, medical doctors, psychologists and many others are bound to adhere to their own professional and organisational codes of conduct. These codes typically outline the responsibilities of professionals and researchers, as well as the conditions under which they may practice their work. They include a variety of selected moral rules and obligations linked to making value-based judgements on protecting the safety and well-being of people being served by the professionals' or researchers' work. The basis of a small number of these codes that may come into play in participatory water planning are outlined here.

## 2.1. Engineering ethics

Professional engineers in many countries are required to adhere to a variety of codes of ethics, often developed by national non-governmental institutions or associations. Sanctions for unethical behaviour by members may include being denied membership to the association and the right to continue to use the appellation “professional engineer” to describe themselves, as well as prosecution if any other laws or international agreements have been violated. For Australian engineers, it is the Institution of Engineers Australia’s “Code of Ethics” (IEA, 2000) that fulfils this role. The code is based on seven key values: “ethical behaviour; competent performance; innovative practice; engineering excellence; equality of opportunity; social justice; and sustainable development” (IEA, 2000), as well as three cardinal principles: “to respect the inherent dignity of the individual; to act on the basis of a well informed conscience; and to act in the interest of the community” (IEA, 2000). At the centre of the code are nine “tenets”, provided in Table 1.

**Table 1 Tenets of the Institution of Engineers Australia’s Code of Ethics (IEA, 2000)**

N°	Tenet
1	Members shall place their responsibility for the welfare, health and safety of the community before their responsibility to sectional or private interests, or to other members.
2	Members shall act with honour, integrity and dignity in order to merit the trust of the community and the profession.
3	Members shall act only in areas of their competence and in a careful and diligent manner.
4	Members shall act with honesty, good faith and equity and without discrimination towards all in the community.
5	Members shall apply their skill and knowledge in the interest of their employer or client for whom they shall act with integrity without compromising any other obligation to these Tenets
6	Members shall, where relevant, take reasonable steps to inform themselves, their clients and employers, of the social, environmental, economic and other possible consequences which may arise from their actions.
7	Members shall express opinions, make statements or give evidence with fairness and honesty and only on the basis of adequate knowledge.
8	Members shall continue to develop relevant knowledge, skill and expertise throughout their careers and shall actively assist and encourage those with whom they are associated, to do likewise.
9	Members shall not assist in or induce a breach of these Tenets and shall support those who seek to uphold them if called upon or in a position to do so.

One of the most striking aspects of this code is that engineers’ responsibility to the community is clearly shown to come before their responsibility to their employers or clients. This particular aspect is likely to have a bearing on how they work in participatory water planning activities. Other intricacies and the implications of this code are discussed further in later sections of this paper.

## 2.2. Research ethics

Research involving humans, which typically may include any research involving participatory processes, questionnaires or surveys, is expected to be conducted in accordance with ethics codes and guidelines developed at a variety of levels (institutional, national, international). A summary of over 1000 relevant pieces of legislation and codes related to research in 92 countries has been compiled by the US Department of Health and Human Services (US Government, 2008), which also includes the relevant international documents such as the United Nations Human Rights Treaties. Research projects in many countries are required by their potential funding bodies or sponsoring academic institutions to undergo an ethics approval process to be eligible for funding and publishing of results. This may take the form of a simple checklist included as part of the research project application, as is required in EU Framework Programme 7 research projects. For example, the ICT project category included a checklist (EC, 2007) with questions in the “privacy” category being:

- “Does the proposal involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?
- Does the proposal involve tracking the location or observation of people?”

If “yes” is answered to any of the questions in the checklist, the proposal must undergo an ethics review, as well as its scientific review before being eligible for funding.

In Australia, for most research in the medical or social sciences, ethics approval must be sought before a research project is commenced. Researchers must document how they will manage a number of key ethical issues throughout and after the project's life, which are described in the National Statement on Ethical Conduct in Human Research (Australian Government, 2007). Researchers are expected to reflect on risks, benefits and participant consent related to being involved in the research project, as well as to uphold the values of “respect for human beings”, “research merit and integrity”, “justice” and “beneficence” in the design and implementation of their research activities. A number of key requirements for research to be considered as conducted ethically have been collated from the National Statement in Table 2.

**Table 2 Guidelines for ethical research conduct (Australian Government, 2007)**

<b>Key values</b>	<b>Actions required from researchers relative to research participants</b>
Respect for human beings	<ul style="list-style-type: none"> <li>• Recognising that each human being has value in himself or herself, and that this value must inform all interaction between people.</li> <li>• Having due regard for the welfare, beliefs, perceptions, customs and cultural heritage, both individual and collective, of those involved in research.</li> <li>• Respecting the privacy, confidentiality and cultural sensitivities of the participants and, where relevant, of their communities.</li> <li>• Fulfilling specific agreements made with the participants or the community.</li> <li>• Recognising the value of human autonomy – the capacity to determine one's own life and make one's own decisions.</li> <li>• Providing for the protection of those with diminished or no autonomy, as well as empowering them where possible and protecting and helping people wherever it would be wrong not to do so.</li> </ul>
Research merit and integrity	<ul style="list-style-type: none"> <li>• Justifying the potential benefit of the research which may sometimes require consultation with the relevant communities. This should include searching to contribute to knowledge and understanding and/or to improved social welfare and individual wellbeing, and to the skill and expertise of researchers.</li> <li>• Designing or developing research using methods appropriate for achieving the aims of the proposal, and that is based on a thorough study of the current literature, as well as previous studies.</li> <li>• Ensuring that respect for the participants is not compromised by the aims of the research, by the way it is carried out or by the results. It should therefore be conducted or supervised honestly by persons or teams with experience, qualifications and competence that are appropriate for the research, as well as using appropriate facilities and resources.</li> <li>• Disseminating and communicating results, whether favourable or unfavourable, in ways that permit scrutiny and contribute to public knowledge and understanding.</li> </ul>
Justice	<ul style="list-style-type: none"> <li>• Fairly distributing the benefits and burdens of research (distributive justice)</li> <li>• Ensuring ‘fair treatment’ in the recruitment of participants and the review of research (procedural justice)</li> <li>• Making research outcomes accessible to research participants in a way that is timely and clear.</li> </ul>
Beneficence	<ul style="list-style-type: none"> <li>• Assessing and taking account of the risks of harm and the potential benefits of research to participants and to the wider community</li> <li>• Being sensitive to the welfare and interests of people involved in their research</li> <li>• Reflecting on the social and cultural implications of their work</li> </ul>

Similar to the Engineer's code of ethics outlined in Table 1, researchers are required to respect the value of every individual and the communities with which they work, and that their own research work “does not compromise” this respect. However, the importance of researchers and their work is still on a similar level to the importance of the community as highlighted by the justice and beneficence considerations that are between the “researchers” and those participating in or affected by the research. Researchers working on the organisation or realisation phases of participatory water planning processes will probably be stakeholders in these processes, working to achieve their own needs, as well as the needs of others. We will discuss the relevance of this observation later.

## 2.3. Public service ethics

Government officials or “public servants” at different administrative levels around the world are required to enact programmes in line with the laws and values of the government in power. Many public services and departments have written codes of conduct for their employees to specify the content and spirit of the work they are to carry out. These are to ensure that employees in positions of relative power work for the common good of the people they serve, rather than their own or other vested interests. As an example, the Australian Public Service (Federal Level) has developed a list of 15 values and a code of conduct with 14 elements for its employees based on the Public Service Act 1999. The elements of particular relevance to the participation of APS employees in participatory water planning processes are summarised in Table 3.

**Table 3 Example APS values and code of conduct elements**

<b>APS</b>	<b>Attributes especially relevant to participatory water planning</b>
Values of the service	<ul style="list-style-type: none"> <li>• Apolitical, performing its functions in an impartial and professional manner.</li> <li>• The highest ethical standards.</li> <li>• Openly accountable for its actions, within the framework of ministerial responsibilities to the government, the Parliament and the Australian public.</li> <li>• Responsive to the government in providing frank, honest, comprehensive, accurate and timely advice and in implementing the Government's policies and programs.</li> <li>• Delivers services fairly, effectively, impartially and courteously to the Australian public and is sensitive to the diversity of the Australian public.</li> <li>• Focuses on achieving results and managing performance.</li> </ul>
Employees are to follow these conduct requirements	<ul style="list-style-type: none"> <li>• Behave honestly and with integrity.</li> <li>• Act with care and diligence.</li> <li>• Treat everyone with respect and courtesy, and without harassment.</li> <li>• Comply with all applicable Australian laws.</li> <li>• Comply with any lawful and reasonable direction given by someone in the employee's Agency who has authority to give the direction.</li> <li>• Maintain appropriate confidentiality about dealings that the employee has with any minister or minister's member of staff.</li> <li>• Disclose, and take reasonable steps to avoid, any conflict of interest (real or apparent) in connection with APS employment.</li> <li>• Use Commonwealth resources in a proper manner.</li> <li>• Not provide false or misleading information in response to a request for information that is made for official purposes in connection with the employee's APS employment.</li> <li>• Not make improper use of: inside information or the employee's duties, status, power or authority in order to gain, or seek to gain, a benefit or advantage for the employee or for any other person.</li> <li>• At all times behave in a way that upholds the APS Values and the integrity and good reputation of the APS.</li> <li>• When on duty overseas must at all times behave in a way that upholds the good reputation of Australia.</li> <li>• Comply with any other conduct requirement that is prescribed by the regulations</li> </ul>

Considering these attributes, APS employees are required to work to implement the decisions of the government in power in an apolitical manner. It is considered that “the common good” for the Australian Public is in fact defined by the government and thus the APS employees are advised to avoid reinterpreting the government defined programmes to match their own political positions or priorities. However, public servants remain openly accountable to the public, government and the elected officials, which in participatory water planning processes with all of these groups involved means that they may often have to play a mediating or facilitatory role between them. At other government levels, other rules may also impact on what can be treated in participatory planning processes, as for example at the New South Wales level, “an executive must confine discussion on government matters to material that is in the public domain” NSW Government 2009 Code of Conduct and Ethics for Public Sector Executives.

### 3. ETHICAL DILEMMAS IN PARTICIPATORY WATER PLANNING

Having outlined a small sample of ethical codes that may affect the manner in which engineers, researchers and public servants work together in the design and realisation of participatory water planning projects, we will now turn to illustrating a number of examples of ethical dilemmas that arise in participatory water planning. A large number of participatory water planning processes start as research or development initiatives, where a primary stated aim of an envisaged participatory process is to build local understanding and capacity so that in the future they may be able to make more “informed” choices on the actions required for water management in their regions. Such processes are often run by research or development agencies which also have their own agendas, as well as the aim to help the local communities. In this section we first present two ethical dilemmas that fall into this category of participatory process, one in Kiribati and one in Bulgaria. The other common category of participatory water planning process is those led and funded by government agencies for specific management aims. The third ethical dilemma example in this section is from an Australian water planning process of this type. In these examples, we aim to highlight how the individuals involved in these dilemmas drew upon their own or set codes for ethical practice and how the collaborations of a number of people working together did not always permit each individual’s optimal choice. We will then examine these issues and their implications further in the following discussion section.

#### 3.1. Informal participatory approaches to water planning in an small island nation: maintaining ethical practice under client constraints

Small island countries face water problems that are among the most critical in the world. This is especially so in urban and peri-urban low coral atoll communities. Storage of fresh water in atolls to reduce risks during dry periods is constrained by very small land areas, aquifer geology, pressures of human settlements and increasing demand, agricultural activities, and waste disposal. Frequent ENSO-related droughts, climate variability, and seawater inundation during storms, as well as conflicts between traditional resource rights and the demands of urbanized societies, add to the water management difficulties (White & Falkland, 2009).

The Republic of Kiribati has 32 low atolls and one raised island spread over three million square kilometres of the central Pacific. Over 43% of its population is crowded into one 17 km<sup>2</sup> urban centre, South Tarawa, with population densities as high as 12,000 people per square kilometre. Households use multiple sources of drinking water. These include: obtaining treated water, piped from groundwater reserves (67%); using local groundwater from household wells (72%); rainwater (43%); and more recently, bottled water (4%). Only one third of households have access to the sewerage system and there is widespread open defecation added to the large number of free-ranging domestic animals, particularly pigs. Over the past 34 years, there have been warnings about the extreme risks of using local wells (AGDHC, 1975; Shalev, 1992). Settlement encroachment on two of the four groundwater source areas has forced their abandonment as suitable sources for urban water supply.

Climate-change induced sea level rise imposes additional potential risk to the maintenance of groundwater resources, as did the absence of national water policy and legislation. A very broad, widespread public consultation, undertaken as part of the Global Environment Fund Kiribati Adaptation Program, KAP, identified freshwater as the highest priority concern. Under KAP, a start was made to develop National Water Resources Policy and a 10-year National Water Resources Implementation Plan through a participatory process with the key government ministries and peak non government and community organisations.

Government ministries in the water sector in Kiribati have a very poor record of cooperation and are extremely reluctant to engage with communities. Because of that, a researcher, contracted under KAP and responsible to the lead water agency to facilitate the development of national policy and plans, proposed the formation of a National Water and Sanitation Coordination Committee, NWSCC, to bring together all key players and interested parties in the water and sanitation sectors. This initiative had the aim of forming a whole-of-government and community approach to freshwater management and planning (White, 2007).

At the inaugural meeting of the NWSCC, when the issue of inclusions of NGO and community organisations, including the Council of Churches and the Chamber of Commerce and Industry, was

raised, the Secretary of the lead water agency stated “no NGOs, water is government business”. This posed a significant ethical issue for the research consultant. The terms of reference for the policy and plan development called for the coordinated participation of all key stakeholders, but the lead agency, to whom the research consultant was answerable, had removed NGOs and community organisations from the formal participation process.

To obtain the required consensus for a widely acceptable and more likely implementable plan, the researcher developed an informal participatory process linked to the formal government process to resolve the encountered ethical dilemma. In the final process, the research consultant had to first develop each iteration of the policy and plans with the government-only NWSCC, then negotiate separately with NGOs and community groups before the next iteration. This effectively doubled the length of the process but finally achieved the required consensus of all stakeholders so that the policy and plan could be forwarded to Cabinet for endorsement.

### **3.2. Process adaptation to meet emergent wishes of the public resulting from participatory processes: creating hope and then what?**

From 2005-2008, the European Union (EU) funded a research project to investigate the use of highly participatory forms of water management, with an objective of seeing how such processes could aid the implementation of the Water Framework Directive (2000) and mitigate water stress from both quantity and quality problems. Bulgaria is one country and recent entrant of the EU that encounters serious water stress issues, in particular due to floods, droughts, widespread pollution and recent periods of political, economic and social tradition. Against this background and funded by the European research project, researchers from a number of countries outside of Bulgaria collaboratively designed a year-long participatory process that would aid work with a variety of groups of stakeholders from National-level ministers and policy makers to local level managers and citizens from the region around Sofia (Ferrand *et al.*, 2006). The process had the aim of enhancing inter-institutional coordination and capacity building for flood and drought co-management, as well as allowing researchers to test a new participatory process methodology and investigate the Bulgarian's understanding and visions of water management. The process was designed to end after the development and assessment water management strategies, rather than to have a decision-making goal of developing an accepted water management plan. This choice was made because the researchers has no authority for decision-making and did not want to focus on conflicts that could emerge in such a process, but rather to aid stakeholder learning through new types of interactions.

The ethical dilemma of interest here arose when the researchers became aware that many of the participants in the process held very high hopes of what the process might be able to provide to them. Although all of the participants had signed a contract with the research project and were being paid for their participation, the success of the process in enthusing stakeholders had exceeded the researchers' initial expectations. Some of the researchers were worried that the original proposal for the last workshop, which had been originally designed as a multi-criteria assessment of water management strategies with no planned follow-up or concrete outcomes, would not meet the participants' expectations. However, if the last workshop was not carried out as planned using a computer-tool that was required to be tested in the research project, then some of the research objectives for the participatory water planning process would not be met. Prior to the final workshop, some of the participating local stakeholders and officials, whose region had recently flooded a number of times, had also invited the researchers to come to see the damage and specifically asked the researchers for management advice and how they could help them to protect their region and its people in the future (Daniell, 2008).

Here we clearly see the dilemma for the researchers: whether to put community needs and interests ahead of their own research needs – in particular, the original bases on which they applied for funding and the perceived merit of the research. In the debate to change the final workshop, different researchers exhibited and defended certain views, relative to specific aspects of the ethical dilemma. One of the project's lead researchers was concerned about the project change damaging the “research merit and integrity” as the researchers could not completely fulfill their testing as proposed to the European Commission, and that he was not keen in providing unequal benefits to one group of stakeholders in the process – an issue of “justice”. The research director responsible for the project outcomes, along with another two researchers involved in the participatory process design, were less concerned by these issues and more concerned about “respect” and “beneficence” issues. In particular, the researchers strongly felt their responsibility to

work to help and empower these more vulnerable stakeholders to be able to make decisions and act to improve their lives, and to prevent themselves from the devastating effects of flooding. They thought that creating an action planning workshop to aid these stakeholders would therefore be a more respectful way to end the process. It was also thought that this change would increase the overall benefits of the project. It could leave all participants with a more positive experience of their first participatory process, thus opening the way for more research and participatory methods to be used in the country, rather than risk participants' disappointment with the process and damaging stakeholders' perceptions of the usefulness of participatory planning processes (see Barreteau et al. (2009) for further discussion on this point). The researchers finally decided to adapt the process to meet both a number of local and research needs by dedicating the final workshop to outlining an action plan for the small flooded region, the projects within which could be used by the Bulgarians to apply for structural funding to continue their collective work on flood management. This workshop and the whole participatory process were very well received by the Bulgarians, even if a couple of the EU research project's objectives were not fulfilled (Daniell, 2008).

### **3.3. Setting water management plan goals: whose responsibility to define the common "good" for the plan's area?**

A recent local-government driven regional estuarine planning process in a peri-urban area of eastern Australia (BMT WBM, 2008; Daniell, 2008) provides us with an illustrative example of how different responsibilities in participatory planning are linked to perceptions of the "good" management of the estuary they strive for. In the organisational team of the participatory process, as well as through the participatory planning process with a broad range of regional stakeholders (e.g. authorities, industries, associations and residents), a range of different positions and ethics were represented. For example, the estuary manager portrayed his "ethic of duty" to the estuary, its community and local government for whom he worked. In particular, he valued the bringing together of the necessary expertise and stakeholders required to create the plan, while trying to remain impartial and rely on independent professional advice and the outcomes of the participatory process, even though he still sought planning goals from the participatory process that would allow him to meet his task of improving estuarine environmental quality. An environmental engineer chosen through a public tender as project manager of the planning process including the writing of the plan also demonstrated a similar "ethic of duty". He showed how he took his professional responsibility seriously for the planning project to meet the common good for the plan's area and client. During the planning process, including in the participatory workshops and document analysis for the plan writing, he paid particular attention to carefully weigh up social, economic and environmental considerations – a "balanced" or "triple bottom line" view of sustainability – and not to over-cater to specific views but rather to give his honest opinions based on experience and competence. Of the stakeholders present in the participatory planning workshops, a number spoke of seeking estuarine management goals that appeared to be based on a heightened level of environmental ethics. Specifically, the more vocal stakeholders in the group collectively supported a version of sustainability where functional and sustainable ecosystems are the basis of ensuring social and economic sustainability. From analysis of the participatory workshop discussions between the project manager and stakeholders, we found that their perceptions and definitions of sustainability differed, and hence their visions of "good" estuary management also diverged. In this case, certain stakeholder viewpoints were integrated up to a point in planning goals synthesized by the project manager, yet the fundamental difference in the viewpoints of sustainability was not completely reconciled (see Daniell et al. (2004) and Fischer et al. (2007) for further discussion on sustainability definitions). In such a case, whether engineers prefer to back their own professional competence and viewpoints in making planning decisions, as their code of ethics suggests, or are able to accept the viewpoints of stakeholders, many of whom were equally scientific experts or professionals, for the management of their own region, having assessed them as equally viable from their professional analysis, is a question widely open to debate.

The analysis of this small conflict in values was in part carried out by a graduate engineer acting in the capacity of a research consultant on participatory planning methods as part of the project management team. This researcher's involvement in the management team and with stakeholders also complicated ethical positioning of the planning process and its relations to stakeholders, as she held yet other underlying ethics for the "good" management of the estuary and was restrained by the university's ethics clearance procedures that had been undertaken for the research component of the planning project. Specifically, each participant in the workshops was asked to give signed consent to participating in the research project including to respond to evaluation questionnaires and to have their

participation in the workshops video-taped to aid further analysis. From the beginning of the project, the researcher had been looking to promote a more participative ethic, where all the parties with stakes in the management and its effects on the estuary being collectively able to determine their own goals and corresponding required management actions for the estuary. With the promotion of this ethic, the researcher and her research colleagues were also seen to exhibit an “ethic of care” towards the stakeholders participating in the process, especially those with less authoritative power. Although not totally incompatible, these ethics were seen at certain points in the process to be difficult to put in practice alongside the ethic of duty exhibited by the project manager and to a slightly lesser extent the estuary manager. In particular, the conflict of ethics was most manifested in the choice of participants for each participatory session, and how the stakeholders’ work would be synthesized into the plan with the other scientific and legislative analysis carried out by the project manager’s consulting team.

## 4. DISCUSSION

Following on from the example ethical dilemmas in participatory water planning, here we discuss how these dilemmas might be more generally defined. We also investigate the need for open co-development and discussion of ethics in future participatory water planning practice.

### 4.1. Defining the dilemmas

The following three general definitions of dilemmas are evident from our investigations participatory water planning practice:

- (i) Inexistence, ignorance or non-respect of ethical codes;
- (ii) Internal tensions in respecting a single ethical code; and
- (iii) External tensions in respecting multiple ethical codes.

The first type of dilemma was apparent in the Kiribati planning process. In particular from the point of view of the research consultant working on the development of the Island Nation’s water plan, the existence of an ethical code for government agency employees was not evident. This appeared to cause the conflict with the research consultant’s own ethical reflection and his paid purpose to work on the islands. Another point of interest in this case is that because the research consultant was to be working with government agencies and community organisations, and theoretically not eliciting personal or private information from individual participants in the participatory process, his university employer had considered that the intervention research project did not have to undergo the usual ethics clearance process. In retrospect, although no major privacy issues were encountered, it may have been useful for all the project’s partners to have undertaken greater ethical reflection in its primary and intermediary stages to analyse the risks and benefits of the proposed and adjusted participatory processes on the different groups of stakeholders, as well as the social, political and physical outcomes for the developing nation.

The second type of dilemma was most apparent in the Bulgarian case. In our example, the ethical dilemma outlined was largely related to different aspects of research ethics, showing how inside one code for the ethical conduct of research, the team members involved in organising participatory planning processes came across the need to weigh up the importance of each aspect of the ethical code (i.e. respect, research merit and integrity, justice and beneficence), as well as whether integrative solutions to the dilemma could be sought without major trade-offs between them. It is equally possible for this type of dilemma to occur outside of participatory practice, as individuals may find tensions in their own personal reflections and a single ethical code (Taket, 1994).

The final type of dilemma, related to external tensions in respecting multiple ethical codes, was most evident in Australian example; specifically, the interaction of the government officials’, engineering consultants’ and researchers’ professional codes and personal ethical positions. In such a case, having a clear understanding of the ethical constraints and preferences of each person in the management team is particularly important for being able to resolve conflicts in a constructive manner. Through this project, the team’s understanding of each other was slowly built through the learning processes related to conflict resolution. In hindsight, it would have been more beneficial to have had greater initial understanding of the typical ethical and professional constraints of researchers, engineers and public servants, in order to have avoided some specific conflicts that can occur when they work together. We hope our illustration of these issues will aid those embarking on future participatory water planning processes.

## 4.2. Co-developing ethics

It is evident that there is a need for individual reflection on practice in participatory processes and the impacts one individual can make in intervening in planning or decision-making processes (Syme & Sadler, 1994; Taket, 1994; Johnson *et al.*, 1995; Kesby, 1998; Australian Government, 2007). However, what has been less clearly articulated, but clearly seen from our ethical dilemma examples, is the necessity for collective reflection and the co-development of ethics applicable to groups of people working together to organise or participate in water planning activities. In participatory processes, one person's moral stance and ethical preferences are often likely to be in at least partial disaccord with those of others. The case of development practice is one of the more extreme examples of where major conflicts can occur unless these issues are successfully managed. This is clearly demonstrated from the critique of common development practices such as those of Sillitoe (2000) who writes of the "*need to urge development agencies to debate more openly the wisdom and ethics of interfering socially in other communities, imposing Western-informed notions of good governance, human rights and natural justice.*" We consider that it is not just development agencies but any researchers or professionals involved in participatory planning process in both developing and developed countries who need to openly debate the wisdom and ethics of intervening in others' lives. This is especially the case related to deciding on something as vital to everyone's lives as water.

Although we have presented a number of ethical codes and guidelines in this paper that are aimed at supporting improved moral conduct, we have also attempted to emphasise the differences and the potential for internal and external inconsistencies in such codes through our case examples. We therefore consider that ethical codes are a useful starting point for individual and collective reflection, but that it is equally important to understand that these codes or the rules within them may not live up to all individuals' or a groups' own moral principles for good conduct. In many cases, this means that it is important for individuals to learn how to make their own appropriate decisions on ethics for specific contextual issues in close collaboration with those sharing power over, or potentially affected by, the decision. For such reflection to occur, specific training related to these issues for those embarking on participatory water planning is likely to be necessary. In particular, it should be a training that:

- (i) Helps individuals to understand their own values, develop their own moral autonomy and to be able clearly explicit their own views on ethical dilemmas;
- (ii) Helps to build individuals' capacity to critically appreciate the views and values of others; and
- (iii) Helps individuals' to be able to successfully work together and collectively negotiate mutually beneficial and compatible solutions to ethical dilemmas.

Some training programmes related to these needs already exist such as those of Wynn *et al.* (2009) for social science researchers, and some aspects of Priscoli's (2003) training programme for participation, consensus building and conflict management in the water sector. Yet use of such training materials is rare outside of the specific targeted populations of the programmes.

We see one of the major challenges of enhancing ethical reflection and the co-development of ethics for participatory water planning, as the general problem of disinterest that many people involved in these processes have in reflection on ethics and practice – or 'navel-gazing' as some prefer to call it. Although unfortunate, from our personal experience as students, teachers and managers, ethics education and resolving ethical issues is often seen as an arduous subject of study or uninteresting task. In particular, for people less interested in social sciences, politics and philosophy, ethics review processes are avoided as much as possible. If we are to succeed in developing awareness of the benefits that may derive from reflexive practice and successfully co-developing ethics for participatory water planning processes, we must work to make the study of ethics and the resolution of dilemmas a stimulating experience where critique of current practice may move to effective methods of problem solving. Looking at ethics through the lens of decision-making and analysing the underlying criteria and values on which certain decisions are taken, may prove of greater interest to those learning about ethics than lecturing on morals. Like the slow but now widespread introduction of sustainability concepts into engineering and business education, we have hope that ethics concepts and their participatory co-development we likewise be embraced and transform our capability to more successfully manage the world's water for the "common good".

## 5. CONCLUSIONS

With the rise of participation and the growing number of participatory water planning initiatives around the world, greater attention needs to be given to ethics related to the use, organisation and coordination of

participatory forms of water planning. Working with diverse groups of people in these settings requires the ability to understand and collectively make a range of decisions on both water issues and participatory process design and implementation. Ethical questions and sensitivities arise in such work including issues of changing existing power structures, privacy conditions and cultural sensitivities. Existing procedures for ethics clearance and codes of ethics, conduct and professionalism aim to increase adherents' awareness of ethical issues and mitigate risks. In some jurisdictions involved in participatory water planning, as was partially evident in our Kiribati process example, both codes and ethical implications of the processes in which they are involved were at times overlooked. In other participatory water planning processes, such as our Bulgaria and Australian examples, internal tensions in codes or external tensions between codes and differences in individuals' moral preferences were observed in the analysis of the ethical dilemmas. Challenges remain to being able to successfully co-develop ethics. Yet by encouraging greater acceptance of ethics in practice and developing problem-based interactive training programmes for people participating in future participatory water planning processes, we hold high hopes that successful, sustainable and ethical water management can soon be achieved around the world.

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