A review of best practice in environmental citizenship models

A review of case studies for EPA Victoria

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Summary and recommendations

Introduction

The Victorian Environment Protection Authority (EPA) is currently drafting an Environmental Citizenship Strategy. The strategy will:

- provide a framework that defines 'environmental citizenship' in the EPA context, what an environmental citizen is, and sets the EPAs commitments to being a leader in environmental citizenship
- outline the changes EPA wants to see in business, community and other stakeholders that will mean they are being environmental citizens
- demonstrate how environmental citizenship is integrated into the EPAs operating model, strategic priorities and is the EPAs next logical step as a modern regulator
- set EPAs priorities and key activities to achieve environmental citizenship.

Purpose of this review

EPA engaged Environmental Evidence Australia (EEA) to review and assemble case studies of contemporary governments and organisations developing and implementing citizenship models that it could refer to when developing its Environmental Citizenship Strategy and its supporting environmental citizenship framework.

This paper delivers EEAs findings as follows:

- Section 1 introduces EPAs Environmental Citizenship Strategy, including its definition of an environmental citizen and explains the approach used by EEA to assemble recent examples of environmental citizenship.
- Section 2 establishes the current context for environmental citizenship using recent academic literature.
- Section 3 summarises the key findings of EEAs review of environmental citizenship case studies, including factors that can be attributed to successful environmental citizenship models.
- Section 4 compiles recent environmental citizenship case studies from Australia, the United States of America, United Kingdom, Europe, Canada and Asia.

Key findings of this review

Environmental citizenship tools and approaches

The environmental citizenship domain is complex. EEAs review found that agreement on what constitutes environmental citizenship, and the most effective tools and approaches for implementing environmental citizenship, are still emerging.

Recent literature classifies environmental citizenship tools into 'new tools' and 'old tools' (Dietz and Stern, 2002). As Dietz and Stern, 2002 explains, old tools are described as 'command and control' and 'market-based policies', while new tools are considered to be 'education', 'provision of information' and 'voluntary measures'.

The taxonomy suggested by Dietz and Stern, 2002 highlights the gap between EPAs existing functions and the portfolio of tools that are required to implement environmental citizenship. Most of the tools and approaches EPA already has available to encourage environmental citizenship under Part III of the *Environment Protection Act 1970* would be classified as old tools.

This review found some additional new tools EPA should consider incorporating into its environmental citizenship framework, namely:

- using community champions to motivate and encourage others
- establishing of social and professional networks
- providing funds to undertake activities.

These tools are described in the case studies presented in section 4 of this review.

While there are several other taxonomies of regulatory reform that are appropriate to consider in a review of environmental citizenship, it is generally agreed that returning to policies of the past such as the old tools described by Dietz and Stern is not an option (Gunningham, 2002).

Defining 'best practice' in environmental citizenship
The review examined case studies of environmental citizenship from Australia, the United States of America, United Kingdom, Europe, Canada and Asia, as well as a wealth of literature about the theoretical frameworks, concepts and models that aim to rationalise the complexity of the concept of environmental citizenship. Despite the large volume of environmental citizenship-related literature, very little reported on the effectiveness of tools and approaches (interventions).

In a recent paper, Jagers and Matti, 2010 state that the literature on environmental citizenship to date is lacking in empirical studies. This finding is also supported by Barnett et al., 2005 which provides several reasons for this situation, namely:

- that social impacts cannot be captured well by quantitative measures
- evaluations are often not built into projects
- it is difficult to attribute the impact of projects to particular actions
- outcomes are valued differently between organisations.

Gunningham, 2009 also states that there is much work to be done in mapping the progress, identifying why and what works (and what doesn't work) and providing a better understanding of how to match different institutional and governance arrangements with specific environmental problems.

EEA found that most case studies use multiple tools but it is difficult to distinguish the component effects. For example, the combination of tools such as motivational incentives and the provision of information and advice along with voluntary measures represent a common suite of tools. There is little scope in the literature to measure and report on the outcomes of these approaches or delineate the individual effects of the specific tools. Further to this Dietz and Stern, 2002 note that every tool is a hybrid. This may be because clear definitions of the intended outcomes or applications of specific tools have not yet been developed.

Despite the absence of comprehensive monitoring and evaluation of environmental citizenship tools and approaches in many of the case studies, EEAs review was able to establish that the following factors can be attributed to effective environmental citizenship interventions. (Full references are provided in section 3.)

- Using local social infrastructure and support networks
- Provision of credible, expert and locally relevant information
- Using local champions or local products and services
- Public involvement in gaining new knowledge, wisdom and skills. Also for gaining support, improving trust in the scientific process and providing local ownership
- Participatory models of decision-making and consensus building
- Multi-stakeholder partnerships
- Legislation and cost savings

- Increasing the feeling of social belonging
- Sense of identity or association with the location, including a moral responsibility of for the area
- Focusing on only one or a few issues rather than a larger number
- Environmental awareness and education
- National identity/image

The case studies also revealed that the following factors each influence how people respond to environmental citizenship tools or initiatives.

- Gender, age, ethnicity, social class and religion
- Environmental awareness and level of education
- Social belonging, local identity and national pride

It is vital that the situational context is considered during the design and implementation of any environmental citizenship tool or initiative.

Recommendations

EEA recommends EPA consider following the steps outlined below when developing its environmental citizenship framework.

1. Develop a clear definition of environmental citizenship that incorporates key concepts and frameworks that will help define the operational context (e.g. social licence, environmental behaviours and governance mechanisms).

2. Develop a clear definitional framework that articulates:
   a. the specific environmental outcomes desired
   b. the desired changes of community behaviours and attitudes
   c. the target audiences and where are they located
   d. how the outcomes, including changes in community attitudes and behaviour, will be measured and evaluated.

3. Develop profiles of the target audiences or locations where environmental citizenship approaches will be implemented. EPA could consider prioritising these profiles and in some circumstances use existing models to achieve the best environmental outcomes. Profiles should include:
   - demographics
   - religious affiliations
   - socio-economic status
   - level of environmental education
   - willingness to cooperate or pay.

   Profiles may also include factors such as the risk or harm to the health of the environment from current practices.

4. Undertake further examination of the evidence contained within the EPA Zotero library, which contains over 300 environmental citizenship-related references, to draw out relevant tools and theoretical frameworks once Steps 1 and 2 have been completed.

5. Develop targeted approaches rather than blanket policies to achieve the desired environmental outcomes.

6. Pilot the approaches in locally-contained areas.

1. Introduction

1.1 Background

The Victorian Environment Protection Authority (EPA) is currently drafting an Environmental Citizenship Strategy for EPA. The purpose of the strategy is to:

- provide a framework that defines environmental citizenship in the EPA context, what an environmental citizen is, and sets our commitments to being a leader in environmental citizenship
- outline the changes EPA wants to see in business, community and other stakeholders that will mean they are being environmental citizens
- demonstrate how environmental citizenship is integrated into the EPAs operating model, strategic priorities and is EPAs next logical step as a modern regulator
- set EPAs priorities and key activities to achieve environmental citizenship.

EPA is currently viewing environmental citizenship as the term given to the interdependent relationship between EPA and the Victorian Community and our joint responsibility to protect and improve the environment. It involves actively encouraging, supporting and empowering the community, business and organisations to create lasting pro-environmental behaviour change driven by:

- accessibility, participation and responsibility
- environmental equity and restorative action
- environmental leadership

EPA believes its operating model and strategic priorities will be strengthened by the integration of environmental citizenship into all of its work. This will be a transformative process for EPA. It will involve EPA progressively broadening its regulatory tool-kit and approaches to engaging with industry, community and organisations by creating and applying environmental citizenship interventions. This will enable EPA to identify and develop opportunities for higher environmental performance and greater leadership across Victoria.

As a modern regulator EPA recognises that it has finite resources and can't be everywhere all the time. It has to ensure it manages its resources where the biggest difference can be made or where the biggest risks to environment, health and safety or wellbeing can be managed or prevented.

EPA can't protect the environment on its own. It is everyone's responsibility. However, research tells us Victorians find environmental problems challenging and look to leaders to solve the big problems. EPA also experiences community at a neighbourhood-level feeling disconnected from and disempowered to solve local problems. As a modern regulator EPA needs to lead business, community and other stakeholders to protect the environment because they want to, not just because they are pressured or forced to.

In order to be this leader of behaviour change in the Victorian community, EPA recognises that it needs to be more innovative in the way it regulate and work with others and engage and empower more Victorians to understand, own and actively fulfil their responsibility to protect and improve the environment. Without all Victorians doing their part, EPA will never be able to meet the aspirations of business, community and other stakeholders for a healthy, liveable and prosperous Victoria.

EPA has drafted the following definition of an 'Environmental Citizen'.

> An environmental citizen is an individual, group, business, organisation or government that is both:
> - aware of and fulfils their responsibility to live, work or operate in a manner that is not harmful to the environment or other people
> - demonstrates intentional and meaningful behaviour that protects and improves the environment and prevents harm to the environment and human health.

EPA has also developed the Environmental Citizen Model for the Victorian Community (business, community and other stakeholders) shown in Table 1. The model establishes the categories of increasing levels of environmental citizens.

Table 1: Environmental Citizen Model for the Victorian Community

Awareness and Responsibility		Intentional and meaningful environmental behaviours			Environmental Citizens:
Basic understanding of: - EPA's role - Businesses' responsibilities - Individual's responsibilities	Acts in accordance with their responsibilities.	Reports to EPA when individuals or businesses don't act in accordance with their responsibilities.	Participates in EPA decisions that interest or affect them. Participates in restorative conferencing or other EC interventions.	Increasingly demonstrates pro-environmental behaviours. Increasingly demonstrates environmental leadership.	**Individual** **Group** **Business** **Organisation** **Government**

Preventing harm → Increasing the level of positive environmental impact and increasing the level of empowering stakeholders as environmental citizens → **Environmental leadership**

1.2 Project deliverables

Environmental Evidence Australia (EEA) was engaged by EPA to assemble case studies of where contemporary governments and regulatory organisations are developing and applying citizenship models to focus their resources, efforts and expertise to deliver their legislative mandates, without compromising community aspirations for quality government services.

EEA was required to use a desktop process to find existing case studies of:

- government citizenship strategies in a regulatory and non-regulatory context
- governments creating and using surrogate regulators
- other relevant frameworks and models relevant to developing EPAs Environmental Citizenship Strategy and its supporting framework.

1.3 Scope of search and synthesis

Environmental Evidence Australia (EEA) conducts search and synthesis of evidence using a standard, repeatable, transparent and rigorous method. The method is based on that used in

Systematic Review. A report summarising the evidence search strategy and the evidence found from the search called a 'State of the Evidence Report' was provided to EPA as the first part of this project.

EEA adopted the review scope outlined in Table 2.

Table 2. Environmental citizenship review scope

Inclusion criteria	Exclusion criteria
• All studies involve government driven initiatives and the citizens role in environmental citizenship • Corporations and non-government organisations role in environmental citizenship • Case studies relating to governments and citizens success/failure in implementing environmental citizenship • Regulatory and non-regulatory frameworks for promoting environmental citizenship • Theories and government models relating to environmental citizenship • Ecological citizenship • Theories behind citizen's 'environmental citizenship' behaviour	• 'Contemporary governments and regulatory organisations' refers to case studies in the last twelve years (2000-2012)* • Case studies from developing countries • Environmental behaviour in general • Social responsibility • Sustainability

* Please note that several key paper published prior to the year 2000 have also been included by request of EPA.

The case studies documented in section 4 of this review capture the situational context for each environmental citizenship approach, the tools used and their reported effectiveness. EEA notes that there is likely to be a reporting bias in the literature with successful initiatives rather than those that were unsuccessful likely to be reported.

It is important to note that this document was not intended to review the concept, background or theory of environmental citizenship or related concepts, rather present case studies of environmental citizenship. However, evidence relating to the theory of environmental citizenship is available in the Zotero evidence library established for EPA. Section 2 of this review also contains a synthesis of this evidence to assist EPA in defining environmental citizenship.

2. Context for case studies

2.1 What is citizenship?

Citizenship, as a concept, is about the rights and duties of individuals in a given political territory such as the state (Dobson, 2005). Dobson, 2005 draws the distinction between liberal citizenship and republican citizenship where liberal citizenship focuses more on rights than on duties and republican citizenship draws on the notion of duty and of virtue. Dobson, 2005 states that civic republican citizenship taps into the classical tradition in which the individual's allegiance to the political community is regarded as being in tension with the individual's allegiance to themselves. This therefore stresses responsibility to the wellbeing of the political community ahead of the rights of the individual. In contrast however the citizenship we have come to associate with liberal democracy is much more a matter of rights claiming than responsibility exercising (Dobson, 2003).

Citizenship has also been described as being dynamic and political, entailing a bundle of rights, responsibilities and practices that define membership in a political community (MacGregor et al., 2005). Citizenship emerges from relationships between citizens and institutions, including government over time and in a variety of social, economic and political spaces (MacGregor et al., 2005). Paralleling this definition Barnett et al., 2005 describes citizenship as establishing a predominantly political relationship with the state, often expressed in terms of rights and obligations among members and between them and the state.

Citizenship itself is a debated concept and environmental citizenship contributes to ongoing debates in important ways (MacGregor et al., 2005a). Some have even described ecological citizenship as the 'golden middle way between liberal and civic republican theory' (Jagers and Martinsson, 2010).

2.2 What is environmental citizenship?

When undertaking a review of case studies concerned with environmental citizenship, a significant challenge exists in defining the scope of the concept. While EEA attempted this through the development of the search phrases and terms and the use of inclusion and exclusion criteria in refining the search for literature, the breadth of literature revealed by the search was still vast. As discussed below, one reason for this is due to the interrelatedness of the concepts, taxonomy and practical implementation of environmental citizenship.

This document does not aim to review the theory, background or taxonomy of environmental citizenship. Instead it aims to grasp the characteristics, approaches and the tools that are described in the literature as defining environmental citizenship in order to provide a useful set of case studies that EPA can use within its existing environmental citizenship conceptual framework.

Figure 1 taken from Hawthorne and Alabaster, 1999 illustrates the complex interaction of factors that contribute to environmental citizenship. Hawthorn and Alabaster, 1999 also describe several of the components required to construct a working model of environmental citizenship. As shown in Figure 1, these components are:

- **Environmental information** as being the first step to environmental education.
- **Environmental awareness** where one is aware of the harmful consequences to others from the state of the environment and one ascribes responsibility for changing the offensive environmental conditions.

- **Environmental concern,** which is difficult to define but may include the perceived seriousness of environmental problems, support for government spending on environmental protection, knowledge of environmental problems and issues and behaviour.
- **Personality variables** including factors such as sense of social and personal responsibility, economic orientation, emotionality, religious affiliation and environmentally responsible behaviour as the social norm.
- **Socio-demographic variable**
- **Environmental education and knowledge**
- **Environmental literacy**
- **Environmentally responsible behaviour**

There is large body of literature concerned with the theoretical frameworks, concepts and models that aim to rationalise this complexity. The task of developing practical tools or approaches that accommodate this complex array of interactions is daunting, as the breadth of literature that has been revealed by this review testifies. The implications of this for EPA are discussed as a set of sequential recommendations 'Summary and Recommendations' section of this document.

There is a wealth of literature concerned with defining the characteristics of the 'environmental citizen'. While it is not the scope of this document to synthesise this literature there are several key points that can assist in considering what tools or approaches are relevant for application to the contemporary understanding of the environmental citizen.

Most notably the lineage of definition is led by Andrew Dobson, Neil Gunningham and Paul Stern who have all published widely on environmental behaviour and governance including the notion of environmental citizenship over the last fifteen years. In a review of literature on environmental citizenship, Dobson, 2010 defines environmental citizenship as pro-environmental behaviour, in public and private, driven by a belief in fairness of the distribution of environmental goods, in participation, and in the co-creation of sustainability policy. Dobson, 2010 goes on to say that environmental citizenship draws out the latent values already within an individual as opposed to the more mainstream values-based approaches that aim to change existing values. In a similar notion, Barnett et al., 2005 proposes that environmental citizenship involves looking beyond the satisfaction of our immediate interests to the well-being of the wider community/environment while being aware of the rights and needs of future generations.

Gunningham, 2002 considers the concept of a social licence and its role in influencing private sector corporations' behaviour as part of being an environmental citizen. In a study of fourteen pulp and paper industry firms, Gunningham, 2002 reports that often-strict social licence conditions were imposed on the operations of firms. In some cases investment was made beyond compliance requirements for 'margins of safety'. A key driver for this investment in a social licence was found not to be due to financial return or regulatory requirements but due to reputational consequences. This concept of a social licence is important in the notion of environmental citizenship.

MacGregor et al., 2005 suggests that environmental citizenship is an important part of the shift towards governance, rather than just being governed, in environmental policy and politics. In the past, governments have overwhelmingly used fiscal sticks and carrots or 'economic instruments' as a mechanism for moving people towards more sustainable behaviour (MacGregor et al., 2005). This shift towards more self-regulating governance is a fundamental plank of environmental citizenship. At the core of this is the notion and application of restorative justice. Restorative justice is about deliberative control of justice by citizens (Giddens, 2010). Giddens, 2010 defines restorative justice as deliberative justice, it is about people deliberating over the consequences of a crime, how to deal with them and prevent their recurrence. In defining restorative justice Braithwaite, 2002 quotes from a workshop held on restorative justice that resulted in a good working definition: "a process where all the parties with a stake in a particular offence come together to resolve collectively how to deal with

the aftermath of the offence and its implications for the future" although the author states that this definition is limited in that it does not tell us who or what is to be restored or what the core values of restorative justice are. Braithwaite defines these core values as: forgiveness, responsibility, healing rather than hurting, moral learning, community participation and caring, respectful dialogue, apology and making amends (Braithwaite, 2002a).

In a paper on setting standards for restorative justice it is suggested that there are constraining standards and maximising standards. Constraining standards include non-domination, respectful listening, empowerment and accountability, whereas maximising standards include restoration of human dignity and property loss, restoration of communities or the environment and restoration of freedom or damaged human relationships (Braithwaite, 2002b).

One application of restorative justice that could be applicable for EPA is the use of restorative conferencing. Braithwaite, 2002 discusses the leading role that Australia has taken in the use of restorative conferencing, including the first conferencing program in Wagga Wagga, New South Wales in 1991. Restorative conferencing can have positive effects with regard to the offender taking responsibility, experiencing remorse and offering apology and help to the victim and the community in an effort to right the wrong (Braithwaite, 2002a).

Dobson, 2005 suggests that behaviour driven by environmental citizenship is more likely to last than behaviour driven by financial incentives. In making this point Dobson, 2005 uses the example of the introduction of road pricing in Durham, United Kingdom. While the scheme had a dramatic and instant effect in achieving its objective of reducing car traffic into the city centre (by 90 per cent within a few months), Dobson argues that the effect is only sustained while the financial disincentive is in place and removal of the fee would result in motorists revert to their unsustainable practices because they have not fundamentally changed their attitudes. In this paper Dobson draws the distinction between behaviour change and attitude change in defining the environmental citizen (Dobson, 2007).

Dobson, 2005 states that environmental citizenship should be defined with respect to the relationship between the state and the citizen. He suggests that consumers react to superficial signals without caring about, understanding or being committed to the underlying rationale for the incentives to which they respond. Ecological citizens, on the other hand, would harbour a commitment to the principles and would 'do good' as a matter of justice rather than expediency (Dobson, 2005).

Several authors suggest that the notion of environmental citizenship has one of 'territory' inherent within it. This territorial notion of citizenship is often grounded within individual countries but it could be argued that this notion of environmental citizenship should be extended beyond the state to embrace public international environmental law (Humphreys, 2009).

The literature reports on a change in the nature of environmental policy over the last thirty years from predominantly 'command and control' and market-based approaches to more focus on education, provision and information and voluntary approaches (Dietz and Stern, 2002). This fundamental shift in thinking is the basis of frameworks proposed by several authors regarding new governance, regulatory reform and understanding of environmental behaviour (Gunningham and Sinclair, 1998; Hawthorne and Alabaster, 1999; P.C. Stern, 2000; Gunningham, 2002; Gunningham et al., 2004). These frameworks are all important for understanding and operationally defining 'environmental citizenship'.

Gunningham, 2002 proposes that there are potentially five different frameworks that assist us in conceptualising a new regulatory approach:

1. Reflexive regulation that uses indirect means to achieving broad social goals drawing on enhancing the self-referential capacities of communities. This includes encouraging businesses to self-regulate.

2. Regulatory pluralism involving the use of multiple policy instruments and regulatory actors.
3. Environmental partnerships.
4. Civil regulation and participatory governance where civil organisations such as non-government organisations may set the standards for behaviour.
5. Ecological modernisation involving private sector adoption of concepts such as eco-efficiency.

These five approaches all fit within the notion of new tools and represent a departure from the traditional core functions of EPA in environmental regulation.

EPA should also recognise and understand what Stern, 2000 calls 'environmentally significant behaviour' during development of its Environmental Citizenship Strategy. Stern, 2005 categorises these into several key types including: environmental activism, non-activist behaviours in the public sphere, and private-sphere environmentalism. Stern uses these in the development of a value-belief-norm (VBN) theory (P.C. Stern, 2000) that aims to explain environmental behaviour.

While there is general agreement that environmental citizenship should best occur through a process of extending personal responsibility into the environmental arena, there is no clear agreement on how best to facilitate this (Barnett et al., 2005). In considering how to encourage environmental citizenship however, (Dobson, 2010) puts forward a number of policy opportunities including:

- providing greater opportunities for individuals to take part in local environmental decision-making
- creating more opportunities for civic engagement and volunteerism
- supporting new tools for community connection
- providing greater opportunity for grassroots innovation
- increasing the stock of social capital
- re-thinking local regulation
- using agents of social change more
- bringing the impacts of environmental change close to home.

Figure 1: Conceptual model of environmental citizenship
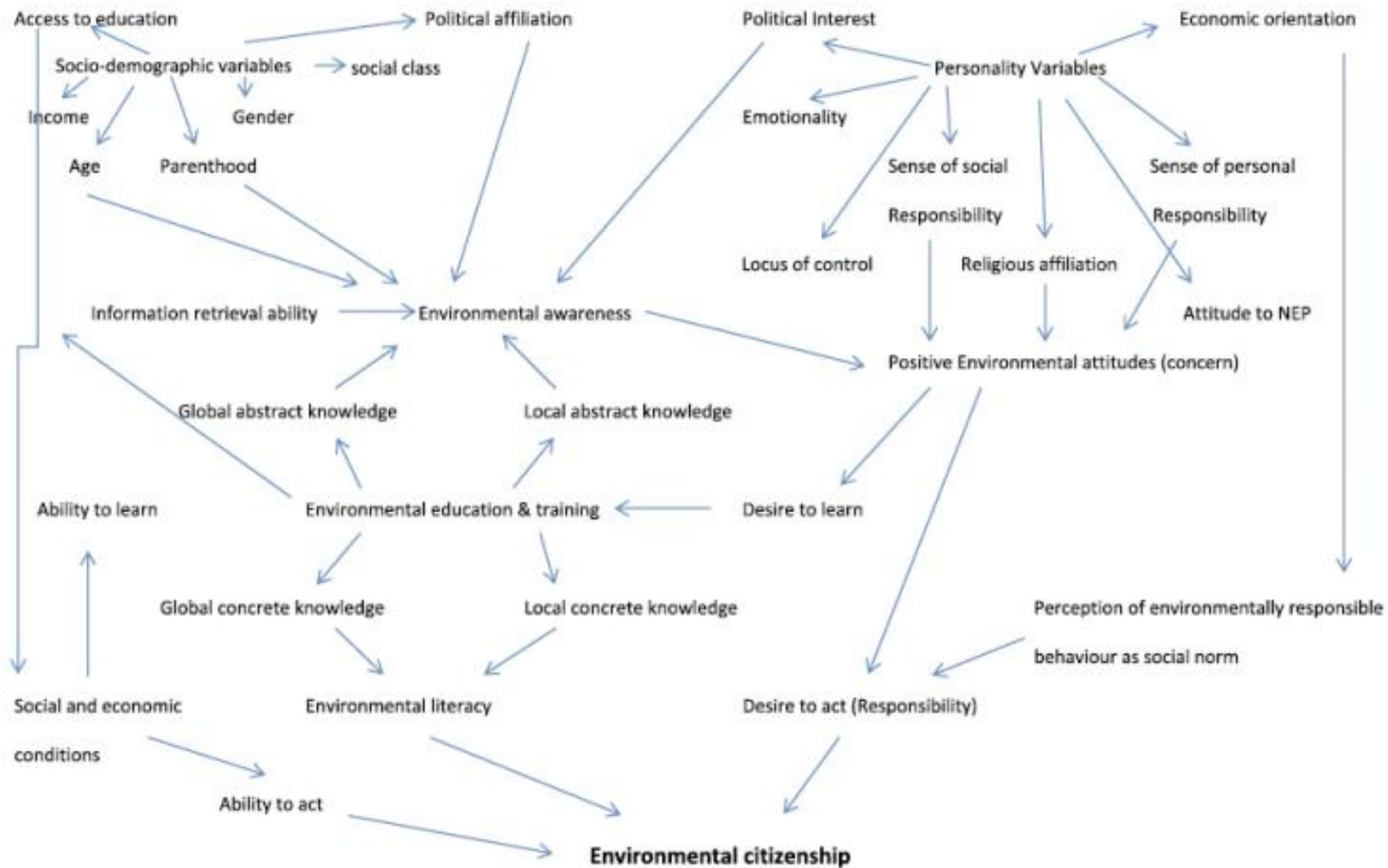
Source: (Hawthorne and Alabaster, 1999b)

3. Key findings from case studies

3.1 Classification of environmental citizenship tools

This review classified case studies according to the characteristics of the environmental citizenship tools or approaches used (see Table 3), which is consistent with the EPAs approach to its draft environmental citizenship framework. The Zotero evidence library of case studies established for EPA also uses this structure.

Table 3: Classification of environmental citizenship tools and approaches

Compliance and enforcement	Encourage higher performance	Inform and educate / support to comply
• Regulatory mechanisms/command and control • Restorative actions	• Governance. • Market-based incentives • Motivational incentives • Voluntary measures.	• Education and provision of advice • Set standards • Support to comply

As previously discussed, the dangers in providing a classification at or below the existing EPA framework are that almost all case studies involve a combination or hybrid of categories used in the classification. So while this more detailed classification has been provided as a structure in the evidence library established for EPA it has not been populated with the case study data. This may be done at a later date if deemed useful by EPA.

Within this structure, current literature also provides more detailed classifications or taxonomy of environmental citizenship, with numerous authors having attempted to classify and categorise environmental behaviour, and regulatory and non-regulatory approaches to environmental management. Prominently, Neil Gunningham has authored several papers on new approaches to environmental governance and regulatory reform (Gunningham and Sinclair, 1998; Gunningham et al., 2004; Gunningham, 2008, 2009a, 2009b). Gunningham's papers discuss the move away from the top-down command and control regulation to a more decentralised and consensus-based approach, which is better able to take account of local contexts, build on local wisdom and provide greater stakeholder ownership and empowerment.

Similarly, Dietz and Stern, 2002 classify tools as either:
- 'old tools', for example command and control and market-based policies, or
- 'new tools', for example education, provision of information and voluntary measures.

The taxonomy suggested by Dietz and Stern, 2002 highlights the gap between EPAs existing functions and the portfolio of tools that are required to implement environmental citizenship. Under Dietz and Stern's classification, most of the tools and approaches EPA already has available to encourage environmental citizenship under Part III of the *Environment Protection Act 1970,* which are listed below would be classified as old tools.

- Division 1A – Economic measures
- Division 1B – Neighbourhood environment improvement plans
- Division 2 – Works approval
- Division 3 – Control of wastes and noise
- Division 4 – Accreditation
- Division 4A – Environment and resource efficiency plans
- Division 5 – Offences and powers of the Authority

EPA has indicated that it intends to combine old tools and new tools, such as providing access to information, education and motivational incentives, into its environmental citizenship framework. One new tool noteworthy of consideration is 'governance'. Governance is a process of open and inclusive public decision making which actively seeks the commitment and engagement of citizens, stakeholders and interest organisations, and "good governance" is collaborative, consensual, democratic, and "bottom-up" rather than "top-down"' (MacGregor et al., 2005).

EPA should also consider incorporating the following tools into its environmental citizenship framework, namely:

- using community champions to motivate and encourage others
- establishing social and professional networks
- providing funds to undertake activities.

These tools are described in the case studies presented in section 4 of this review.

3.2 Factors that influence intervention effectiveness

A key objective of assembling the case studies was to review the effectiveness of the mechanism(s) applied in each case study. Unfortunately there are often no definitive outcomes regarding success or failure reported in the literature. In recognising this (Barnett et al., 2005) lists several reasons:

- Social impacts cannot be captured well by quantitative measures
- Evaluations are often not built into projects
- It is difficult to attribute the impact of projects to particular actions
- Outcomes are valued differently between organisations
- Good evaluation should include both processes and products.

Despite the absence of comprehensive monitoring and evaluation of environmental citizenship tools and approaches in many of the case studies, EEAs review was able to establish that the following factors can be attributed to effective environmental citizenship interventions. As previously discussed, it is important to consider the contextual factors pertaining to each individual cases study in interpreting the success or failure as documented below. Where one intervention (or a combination of interventions) may have successful in one situation, the same intervention may not be successful in other context.

Factors associated with successful interventions
The case studies revealed that the following factors have been attributed to effectiveness of environmental citizenship interventions.

- Using local social infrastructure and support networks (Carr, 2002; Department of the Environment and Water resources, 2007, Sally Downs and Associates, 2008, Svendsen and Campbell 2008, Syme et al., 2008).
- Provision of credible, expert and locally relevant information (US Environment protection Authority, 2003; Department of the Environment and Water Resources, 2007).
- Using local champions or local products and services (Syme et al., 2008).
- Public involvement in gaining new knowledge, wisdom and skills. Also for gaining support, improving trust in the scientific process and providing local ownership (US Environment protection Authority, 2003; Hunsberger et al., 2005; Evans et al., 2008).
- Participatory models of decision-making and consensus building (Fouillard, 2009).
- Multi-stakeholder partnerships (US Environment Protection Authority, 2003).
- Legislation and cost savings (Tudor et al., 2008).

- Increasing the feeling of social belonging (Bramston et al., 2011, Sally Downs and Associates, 2008).
- Sense of identity or association with the location including a moral responsibility of for the area (Syme et al., 2002; Seyfang, 2005; McKinley and Fletcher, 2010)
- Focusing on one or few issues rather than a large number of issues (Hargreaves, 2006)
- Environmental awareness and education (McKinley and Fletcher, 2010)
- National identity/image (Bohdanowicz, 2006; Lynes and Andrachuk, 2008)

Factors associated with unsuccessful interventions

This review found that the following factors have been attributed to unsuccessful environmental citizenship interventions.

- Several authors report on a theory that suggests that multiple interventions used at the one time may compete with each other in a 'crowding out' effect. It is proposed that the intervention of a state tax, crowds out individual responsibility (Ballet et al., 2007). The taxation extolled by the legislator induces a certain crowding out effect as regards to responsibility (Bazin et al., 2004).
- Government agencies failing to:
  - involve stakeholders in the development of environmental legislation
  - reflect the specific local area details in development of the government programs, instead they are often modelled after programs developed for other areas
  - pro-actively help stewardship groups because of the lack of scientific data and the lack of monitoring that is provided from stewardship groups (Carr, 2002).
- Perceptions of complexity of the issue was seen to paralyse action ((Kriflik, 2006) and the perceptions of barriers required to be overcome in order to enable change (von Borgstede and Biel, 2002).
- One case study reported on the implicit distinction between a willingness to act, or behavioural intention and, behaviour. Understanding the difference between a willingness to act and behaviour can provide insights into the gap between anticipated behaviour and actual action (Barr and Gilg, 2005).

4. Case study evidence

This section presents a summary of the case studies found during the evidence search using the search protocol previously submitted to EPA. In some cases all the desired information could not be found within case studies.

Information for each case study is presented in a standard format and has been categorised by country / region. The reference provided refers to the EPA Zotero Evidence library for Environmental Citizenship that has been established as part of this project.

The following standard fields have been used for each case study:

- Case study name
- Objectives of the program
- Type of instrument / mechanism used (existing EPA & new)
- Population context (gender, age, ethnicity, social class, religion and education
- Effectiveness
- Reference

4.1 Australia

Case study name: Encouraging environmental philanthropy: lessons from Australian case studies and interviews.

Objectives of the program: To encourage environmental conservation and philanthropy, and understand the barriers to private land being set aside for conservation using voluntary methods. To measure the success of government conservation programs by analysing attitudes of how incentives might be used to promote environmental philanthropy through voluntary actions.

Type of instrument/mechanism used (existing EPA & new): Market-based incentives, governance, motivational incentives, voluntary methods.

Population context (gender, age, ethnicity, social class, religion and education): Regional Australia - Ballina, New South Wales and Macedon Ranges Shire, Victoria.

- Ballina: Most participants were between the age of 51–65 years, seven men and three women; source and amount of income ranged between pensioner, superannuation, salary/wage earners, primary producer; landholdings varied in size and features (<10–84ha, native bush retained 10–95%).
- Macedon: Most participants ranged between 51–65 years, range in source and amount of income; landholdings varied in size and features (9–500ha, 10–95%).

Effectiveness: Successful schemes were found to be those that had long timeframes, combined continuity of effort with local social support networks and information sources, used peer liaisons, and offered tax incentives. Unsuccessful schemes/problems arose when there was a lack of targeting, coordination, continuity and consistent funding.

Reference: (Department of the Environment and Water Resources, 2007)

Case study name: Assessing environmental stewardship motivation.

Objectives of the program: To determine what motivates individuals to undertake environmental stewardship role and increase environmental stewardship actions.

Type of instrument/mechanism used (existing EPA & new): Voluntary methods.

Population context (gender, age, ethnicity, social class, religion and education):
- Australian undergraduate university students (n=318, approximately 19 years old, 68% female)
- Adults living in rural areas that were members of environmental groups or volunteered (n=88, approximately 43 years old, 61% female, 45% had completed secondary school, 23% tertiary education and 24% had a trade or diploma, 38% were self-employed, 15% were students, 18% worked in industry and 7% for the government).

Effectiveness: The study showed that ecological volunteering and environmental stewardship can be increased by enhancing:
- social belonging with an emphasis on sense of community and the social benefits of working together
- caring for the environment by encompassing themes of making an ecological contribution and a responsibility to leave something worthwhile for future generations
- learning about ecological facts and skill development.

Reference: (Bramston et al., 2011)

Case study name: Grass roots and green tape: principles and practices of environmental stewardship.

Objectives of the program: To increase public awareness of environmental issues, involvement in stewardship action, environmental education and the dissemination of information.

Type of instrument/mechanism used (existing EPA & new): Market-based incentives (funding/grants), regulatory mechanisms (legislation), governance (partnerships/networks), motivational incentives (education and social recognition), voluntary methods (agreements and voluntary actions).

Population context (gender, age, ethnicity, social class, religion and education): Three stewardship groups were interviewed ranging from 15–50 members in rural Australian communities. Males and female participants were all middle-aged, and from a range of economic, employment and educational backgrounds.

Effectiveness: The stewardship groups were shown to have been successful because they:
- created greater awareness of an environmental issue or problem
- increased local involvement in environmental stewardship groups and goals
- increased opportunities for learning/teaching
- increased government department awareness of community projects (which increased the amount of money and support that goes towards groups).

Stewardship groups were unsuccessful because:
- government agencies failed to involve stakeholders in the development of environmental legislation
- government programs for sustainability are rarely developed to specifically reflect specific local areas, i.e. modelled after programs developed for other areas

- it was difficult for government to help stewardship groups pro-actively because of the lack of scientific data and the lack of monitoring that is provided from stewardship groups
- government programs in support of environmental stewardship are developed as a result of a community push, as opposed to a pull from government towards environmental stewardship.

Reference: (Carr, 2002)

Case study name: Consumer citizenship: Acting to minimise environmental health risks related to the food system.

Objectives of the program: To explore the degree to which participants act to control environmental health risks when making food choices and their motivations for doing so. The specific objectives were to clarify and describe consumer knowledge in the following areas:
- the food system and the stages in food production
- understanding of environmental health risks in relation to food
- the extent to which individuals can act to minimise environmental health risks.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures.

Population context (gender, age, ethnicity, social class, religion and education): The research was conducted in an Australian coastal region that included city, urban, industrial and primary production areas with diverse demographic and cultural groups living there. Twenty-six women and men were recruited. The female participants included young women, single and in partnerships, mothers whose children ranged from babies through to post-school, and post-family/mature women. All male participants were in relationships and most had families.

Effectiveness: A minority of the study participants indicated they had modified food choice behaviours in response to their environmental health concerns prior to the interviews. Other participants perceived food issues as too complex. Motivations for action ranged from the minimisation of personal risk to citizenship attempts aimed at influencing the political and social context of food production, especially the protection of cultural and traditional values.

Although participants were limited to the actions that they could take as an individual to reduce the environmental impacts, the study showed that many were committed to make these changes. It was reported that participants demonstrated the resilient capacity of consumers who do not want to see their values compromised and who take citizenship action to benefit both self and others. While some actions may be driven by self-interest, the flow-on effects contribute to general public good.

Reference: (Kriflik, 2006b)

Case study name: The limits of environmental responsibility - A stormwater case study.

Objectives of the program: The study examined the determinants of feelings of responsibility at a regional watershed level.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): The study involved 840 participants from the cities of Melbourne, Sydney, Brisbane and Perth. Approximately one-quarter of respondents had lived in their catchments for five years or less (28.7%), just under one-quarter (23.7%) had lived on their catchments for between five and 15 years, and the remainder

(47.6%) had lived there for more than 15 years. Nearly one-third (30.4%) of respondents had completed a tertiary degree, 31.1 per cent had partially completed a degree or had a trade or technical qualification, 19 per cent had completed high school, and 19.5 per cent had completed primary-level education only. Every study participant resided in an experimental catchment and had received considerable public awareness information about stormwater management behaviours that community members could implement.

Effectiveness: The study confirmed the following hypotheses:
- that locality or geographic context itself is an important determinant of perceived environmental responsibility.
- that those people who tended to have a special affinity with larger neighbourhood boundaries or areas were likely to have a wider scope of perceived responsibility for environmental matters (empirically supported)
- that such areas may be indicative of 'moral inclusion' or sense of responsibility for the environment was also supported.

The study did not support the hypothesis that people who live in one place longer have a greater regional experience and therefore a greater sense of regional responsibility. The data suggested the opposite, with the means going in the reverse direction.

A fourth hypothesis tested if people with higher education and more moral responsibility toward the overall environment would tend to volunteer responsibility for areas outside their immediate neighbourhoods. This hypothesis was supported for education but not for attitudes of general personal responsibility or moral commitment to the environment.

Reference: (Syme et al., 2002)

4.2 United Kingdom

Case study name: Global Action Plan – Action at Home.

Objectives of the program: The Global Action Plan is a charity that encourages people to change their behaviour to protect the environment. This study assessed participant's environmental impact and their response to public awareness information that outlined lifestyle changes they could make to reduce their environmental impact..

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): Over 30,000 households in the United Kingdom between 1994 and 1999.

Effectiveness: Action at Home achieved substantial savings: roughly 30 per cent of participants installed one or more low-energy light bulb and 40 per cent adjusted their toilet cisterns to save water.

Reference: (Hargreaves, 2006)

Case study name: Global Action Plan – Action at School.

Objectives of the program: To increase the environmental awareness of school students with the aim of reducing their waste.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): School students from across the United Kingdom. The program operated in 164 schools across the country. In total 3,361 pupils were involved in the training process, with a further 138,117 influenced by the programme.

Effectiveness: A very high level of success was achieved in reducing waste in schools. On average 42.65 per cent of waste was saved (maximum saving of 83.00%; minimum of 2.10%). Schools with under 500 pupils achieved an average waste saving of 51.94 per cent, schools with between 500–1,000 students achieved a 40.37 per cent waste saving and schools with over 1,000 pupils achieved a 35.73 per cent saving. The evidence suggests that the programme is effective across a range of schools.

Reference: (Hargreaves, 2006)

Case study name: Global Action Plan – Environment Champions.

Objectives of the program: To focus on one or two areas of environmental impact, such as waste and/or energy.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): Organisations from across the United Kingdom were involved in the programme. They represented both businesses and local authority/civil service organisations and ranged in size from 22 to 6,442 employees. A total of 62 organisations participated, involving 924 people.

Effectiveness: Waste reduction: An average waste reduction of 37.96 per cent was achieved across all of the waste programmes, with a maximum saving of 70 per cent and a minimum of 13 per cent. Each organisation that participated in the programme achieved substantial savings, with the size and type of the participating organisation having no significant impact on the waste savings achieved. It was reported that organisations with less than 250 employees achieved average waste savings of 37.62 per cent and those with over 250 employees achieved average waste savings of 38.22 per cent. Local authorities achieved average waste savings of 38.75 per cent and private sector organisations achieved an average waste savings of 37.13 per cent. More substantial savings were achieved when organisations focused solely on waste reduction, with average savings of 41.17 per cent being achieved in these cases.

Energy savings: From 14 energy programmes an average saving of 12.07 per cent was achieved. The organisation where energy use increased was reported to be due to a growth in the size of the organisation resulting in more computers, a larger server and an overall growth in other electrical equipment.

Reference: (Hargreaves, 2006)

Case study name: Global Action Plan – EcoTeams.

Objectives of the program: To help households to change their environmental behaviour.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): 385 different teams participated in the project, made up of approximately 2,300 people and impacting upon about 4,830 people in total. The project was run in all parts of the United Kingdom. Teams of six to eight people were recruited either from the same neighbourhood, through workplaces, or through existing social groups.

Effectiveness: Waste reduction: 58 different teams achieved an average waste saving of 19.66 per cent. In absolute terms this equated to a saving of 0.59 kilograms per person per week.

Waste recycling: Recycling rates only increased by 7.71 per cent. This showed that the majority of the overall savings were achieved by reducing waste in the first place.

Electricity savings: On average, teams reduced their electricity consumption by 6.86 per cent, which translated into an absolute saving of 713.85kWh per person per year.

Reference: (Hargreaves, 2006)

Case study name: Exeter recycling program.

Objectives of the program: To reach recycling targets set for household recycling.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance, education and provision of advice, support to comply, regulatory mechanisms.

A 'Recycle from Home' kerbside collection scheme to households throughout the city was used. This enabled households to receive a recycling collection every fortnight, with their other (non-recyclable) refuse being collected on the alternate fortnight. The council subsidised compost bins and wormeries for organic waste. Under the scheme garden waste was no longer permitted in normal waste collection sacks, with residents being fined £50 if they broke the rules.

Population context (gender, age, ethnicity, social class, religion and education): Nine hundred and seventy five households of 43,000 target households from the city of Exeter (United Kingdom) were randomly selected to participate.

Effectiveness: Exeter was set a target of recycling 30 per cent of its waste by 2005, and by 2004, it was recycling 22 per cent, well above the national average. However, despite council efforts to encourage recycling and waste minimisation, the amount of recycled waste was well below the 2005 target. The research revealed some key factors in this result:

1. "There was an implicit distinction between a willingness to act, or behavioural intention and, behaviour. Explaining the difference between a willingness to act and behaviour can provide insights into deficits between anticipated behaviour and actual action. This was seen explicitly with regard to access to kerbside recycling facilities and an awareness that neighbours and friends recycled".

2. "There is a need to move beyond the classical 'awareness–information–decision–action' (AIDA) model that is still the dominant discourse in policy making. A response to the failure of such policy has been to propose more incentives/disincentives for households to manage their waste more effectively. The author argues that policy makers need to examine in far

greater detail the fundamental determinants of environmental behaviour before considering moves away from exhortation. Rather, there is a range of determining factors that combine some of the classic variables (such as information) with less evident ones (such as subjective norms and issues concerning perceptions of convenience and storage space) to have significant influence."

The study found that recycling behaviour could be increased by providing greater kerbside recycling provision, clarifying knowledge of how and where to recycle, ensuring that recycling is perceived as convenient and can handle larger amounts of material, as well as developing normative strategies and schemes that enhance the profile of recycling as accepted behaviour.

Reference: (Barr and Gilg, 2000)

Case study name: Participation in ecological projects as a means of empowering communities to contribute to coastal management processes.

Objectives of the program: The objective was to empower people of Blyth Valley in Northumberland (north-east England) to contribute to the management of their coastal heritage.

Type of instrument/mechanism used (existing EPA & new): Voluntary measures, encouraging higher performance, inform and educate.

Population context (gender, age, ethnicity, social class, religion and education): The study group consisted of a group of volunteers (the Links Conservation Group) working in collaboration with the environmental managers (Blyth Valley Borough Council), scientists, local specialists and other volunteers.

Effectiveness: The study revealed the following benefits to incorporating public opinion into the decision-making.

- The quality of the decision-making process can be improved through the incorporation of public views, as society possesses a wealth of non-scientific knowledge, wisdom, skills and perceptions, including cultural and social ones.
- Lay involvement can help the implementation of policies since policies that recognise, respect and weigh the public's attitudes are more likely to win public support.
- Public participation can improve trust in the scientific process, which is often undervalued and misunderstood to the detriment of scientific advancement.
- The public becomes a potentially huge work force that can support ecological studies.
- The study concluded that public involvement in projects of that nature can have significant benefits for the participants and because of these, knock-on benefits to the whole of society.

Reference: (Evans et al., 2008)

Case study name: Big Lottery Fund (BIG) **-** Green Spaces and Sustainable Communities (GSSC)

Objectives of the program: To improve the environment of communities across the United Kingdom, particularly those facing disadvantage. The GSSC supported projects to 'help disadvantaged communities understand, improve and care for their local environment'.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice, market-based instruments, motivational incentives, voluntary measures, governance, provision of grants.

Population context (gender, age, ethnicity, social class, religion and education): Across the United Kingdom, with many of them in the most disadvantaged communities.

Effectiveness: The programme resulted in new community green spaces, improved playing fields, cycling and walking routes, initiatives to reduce use of the world's scarce resources and children's play projects. The initiative brought about communities with new perspectives on how they want to live, young people trying out improved environmental practices that can last throughout their lives, and individuals newly equipped to tackle the workplace or to bring about change in their local communities.

Although over half of the projects clearly demonstrated how disadvantage could be linked with other agendas, the programme concluded that its overall performance with respect to social inclusion was below expectation. The report also concluded that more could have been achieved if BIG had provided greater clarity about its definition of deprivation, and how it could be combined with other ambitions without reducing the central commitment to those who are most disadvantaged in society.

Evidence was found of the outstanding success of environmental action in genuinely engaging local communities that resulted in the development of neighbourliness, mutual support, increased pleasure from knowing each other, and improved ability to work as a community with outsiders.

Assessment of the projects against the Fund's programme objectives found that:
- four-fifths of the projects showed a very high performance against at least one of BIG's objectives
- when combined performance was considered against these objectives, almost half of the projects showed significant or very significant benefits
- the funding resulted in a stimulating and varied array of projects
- only 15 per cent of projects were poor performers in all respects.

The initiative provided strong evidence of the value of the environment as a catalyst for local action that, in turn, bought about much broader outcomes in terms of social cohesion (e.g. knowing each other better, helping each other more, doing things together, jointly moving into new activity).

Reference: Sally Downs Associates, 2008

Case study name: Home improvements: Household waste minimisation and action research.

Objectives of the program: To expose householders in Ireland to practical ways they could change their waste management practices, whilst eliciting information from them about the feasibility of such practices for their particular lifestyles.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures, support to comply, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): A total of 11 households in four municipal authority areas in Ireland participated. This included three in Fingal County Council, four in Kerry County Council, and two in each of Galway City and Galway County Councils. Participants were selected using a questionnaire and/or an interview as a filter to identify a range of household waste management behaviours, and from these a number of households were selected to participate. Participants included families living in apartments, rented housing, young professionals lacking time, students sharing accommodation, and households without recycling facilities.

Effectiveness: "The project demonstrated that householders are experts of their own daily practices in relation to waste and that using the home as a site for information provision and education about waste minimisation activities makes alternative waste behaviours appear more relevant and achievable to householders as well as providing them with an opportunity to communicate their experiences to research facilitators. As with all methodologies, action research has a series of limitations including the demands time (researchers and participants), and costs of undertaking such a lengthy exercise. The research indicates that waste management behaviour is the outcome of the interaction of numerous factors that are social, cultural and contextual on the one hand and personal on the other. It is proffered that an understanding of the contextual variables which influence waste management behaviour is critical."

Reference: (Fahy and Davies, 2007)

Case study name: UNEP Global Environment Facility GEF Project "Global Environmental Citizenship (GEC)"

Objectives of the program: The principal long-term goal was the formation of a Latin American citizenry that is fully aware of its global environmental rights and responsibilities. The project was a pilot capacity building project and environmental awareness exercise whose goal was the development of a consciously pro-active citizenry capable of contributing to and influencing national decision-making and action around GEF focal areas. The aim was to get people thinking globally but acting locally.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice, motivational incentives, voluntary measures.

Population context (gender, age, ethnicity, social class, religion and education): Seven countries and six regional networks from Latin America and the Caribbean participated.

Effectiveness: It is reported that the results of the project were mixed. The major achievements of the project were the participatory models of decision-making and consensus building where the project-inspired commitment and vision amongst participating countries/networks and the potential for broad-based behavioural and attitudinal change. The project also offered significant capacity building and skills development opportunities for all stakeholders where the term 'environment' is now firmly entrenched in the modus operandi of the networks. Multilateral Environmental Agreement themes have been integrated as 'environment' into popular and alternative radio, the churches, consumer organisations, educators, Parliamentarians and local governments. The project had an important catalytic role in introducing participatory models of decision-making and consensus building at the national and municipal levels of participating countries and selected municipalities.

Reference: (Fouillard, 2009)

Case study name: Environmental citizenship and public attitudes to hydrogen energy technologies.

Objectives of the program: To examine qualitative evidence about public perceptions of the energy crisis, hydrogen technologies and sustainability.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): Members of the general public in three areas in the United Kingdom – Teesside, South-west Wales, and London. Groups for inclusion in the study were mixed in terms of age, gender, ethnicity and socio-economics.

Groups were recruited on the basis that they did not have scientific or technological background, or close familiarity with energy technologies. Groups varied in size from six to13 members.

Effectiveness: The study indicated that while there may be a conditional or provisional recognition of environmental rights and responsibilities, this couldn't be characterised as a fully-fledged environmental citizenship.

The author states that while sustainability may have been identified as a worthwhile goal, and as having resonance with the notion of a 'common good', there was little indication that people's collective welfare was the primary objective. Instead, attitudes seemed to converge on instrumental and privatised outlooks, with an improved environment or greater energy efficiency being seen as desirable for individuals and households. The authors conclude that in the field of hydrogen technology, environmental citizenship remains latent and ecological citizenship has yet to evolve.

Reference: (Flynn et al., 2008)

Case study name: Can corporate social responsibility and environmental citizenship employed in the effective management of waste? Case studies from the National Health Service (NHS) in England and Wales

Objectives of the program: To investigate the main drivers for the use of the concepts and the factors governing their effective implementation, such as senior management support, key benefits to be accrued (i.e. costs savings, waste minimisation) and closer links between the Trusts and their communities.

Type of instrument/mechanism used (existing EPA & new): Regulatory mechanisms, governance, voluntary measures, education, provision of advice, using environmental champions.

Population context (gender, age, ethnicity, social class, religion and education): Individuals from the Calderdale and Huddersfield Foundation NHS Trust located in the north of England.

Effectiveness: The study identified two major factors that are considered to increase the uptake of corporate social responsibility practice: (1) stricter environmental legislation, and (2) increasing treatment and disposal costs for healthcare waste management.

The study findings suggest that the concepts of corporate social responsibility and environmental citizenship can be successfully employed in the effective management of healthcare waste. The study demonstrated that as a result of greater diversion of materials away from disposal, each of the case study Trusts were able to realise cost reduction for waste management. The study also found that the adoption of a wider public focus can also pay dividends for the NHS with respect to an enhanced public image and stronger links and networks with the communities with which it is so inextricably linked. Legislation and costs savings were amongst the most significant drivers for the development of the strategies.

Reference: (Tudor et al., 2008)

Case study name: Ecological citizenship and sustainable consumption: examining local organic food networks.

Objectives of the program: To test the hypothesis that ecological citizenship could be an innovative new force to motivate sustainable consumption, and that such motivations might be expressed through purchasing food from local organic food networks.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures.

Population context (gender, age, ethnicity, social class, religion and education): Organisers and staff of Eostre Organics and market stall customers in East Anglian. Market stall customers: 65 in the first survey and 252 customers from a second survey.

Effectiveness: The empirical study found that both the organisation and their consumers were expressing ecological citizenship values in their activities in a number of clearly identifiable ways, and that the initiative was actively promoting the growth of ecological citizenship, as well as providing a meaningful social context for its expression. The initiative was able to overcome the structural limitations of mainstream sustainable consumption practices. The initiative was also found to be a valuable tool for practising alternative sustainable consumption.

The study found that Eostre uses food as a mechanism for community-building and social cohesion, while delivering sustainable rural livelihoods and a channel for the expression of alternative values about society, environment and the economy. It also found that the values and principles expressed by both creators and users of this local organic food network are strongly resonant with ecological citizenship, and a strong environmental ethic is a significant, if not primary motivation for many of the participants. Participants were able to express preferences which were at odds with market price signals and demonstrate a clear commitment to justice and fairness in trading relationships, to reducing ecological footprints through localising food systems and reducing packaging waste, and sought to make links of solidarity between producer and consumer, regardless of geographical distance.

Reference: (Seyfang, 2006)

Case study name: Individual responsibility for the oceans? An evaluation of marine citizenship by United Kingdom marine practitioners.

Objectives of the program: There study had the following three objectives.
1) To establish the current understanding of citizenship, both general and in an environmental context, held by practitioners involved in marine management.
2) To determine the level of concern, awareness and sense of responsibility practitioners perceive as being held by members of the public with regard to the marine environment.
3) To identify the perceived pre-requisites for increased public involvement in the marine environment and its management, as well as the benefits this would be considered as having for its long-term sustainability.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, Voluntary actions.

Population context (gender, age, ethnicity, social class, religion and education): A broad range of marine practitioners in the United Kingdom, including: Local governance, regional governance (including NGOs), national governance (including NGOs), international governance, academics and other groups.

Effectiveness: The results of the study prompted three main themes for discussion by the author, namely:
1) the lack of consensus over the potential role of marine citizenship as a policy implementation mechanism
2) that focused education and a personal connection to the marine environment are key factors in developing marine citizenship

3) that the implications of an enhanced sense of marine citizenship are unclear.

The results suggest that clearly marine practitioners in the United Kingdom see value in public involvement in the marine governance and as instrumental in delivering successful decision-making, provided short-term decisions are avoided. The study also revealed that there was a lack of clarity amongst practitioners over their understanding of what citizenship is and of the potential role to be played by the development of marine citizenship as a mechanism of policy implementation. There was scepticism over the potential role of marine citizenship due to the perceived limited association felt by individuals to the marine environment and a perceived lack of public understanding about the marine environment.

Study participants considered that a greater sense of marine citizenship would be expected from individuals with a high level of dependency on the marine environment, such as people with livelihoods intrinsically linked to the condition of the marine environment, such as fishermen. The author states that by having a clearer understanding of how individuals with a dependency on the marine environment perceive their governance role (if any), attempts can be made to increase the capacity for, and facilitate, meaningful involvement of the public in management processes.

Reference: (McKinley and Fletcher, 2010)

4.3 United States of America

Case study name: Evaluation of community-based environmental protection (CBEP) projects: accomplishments and lessons learned (US EPA)

Objectives of the program: To identify the advantages and disadvantages of the community-based approach in five projects, to identify the benefits that would not have been realised under traditional environmental management programs and to identify ways that EPA can tailor its participation and support of community initiatives to achieve the best results.

The evaluation of focussed on the following questions.
- To what extent have the selected CBEP projects provided measurable environmental results related to EPA's strategic goals as well as improvements in the long-term sustainability of communities and how have the CBEP projects helped to lay the groundwork for environmental and sustainability improvements?
- Which CBEP attributes were prominent in the selected projects and how are these important in making the projects work well? What factors affect projects that do not work as well?
- What was the value added of the CBEP approach for EPA's community partners and for the agency itself? For example, did the CBEP help foster an enduring community process focused on natural resource management and environmental quality?

Key recommendations from the evaluation are listed below.
- "EPA can improve its role in the provision of information and resources including the promotion and development of geospatial tools. They could also develop information and guidance on how communities can identify and use systems to measure community progress.
- EPA does not have the authority or resources to be directly involved in most communities. EPA may increase its effectiveness and build stronger partnerships through the development of Centres of Expertise for Community Development as a resource for technical assistance

and mentoring for communities looking for ways to plan for and promote environmentally compatible economic development.

- EPA could identify priorities for its direct involvement with communities. This may be based on criteria such as:
    - national or regional significance of ecosystems and landscapes and their natural resource values and the threatening processes to them
    - the likelihood that a community-based partnership approach will address human health risks and other environmental risks more efficiently than regulatory approaches alone
    - The likelihood that particular projects will yield important lessons through monitoring and evaluation"

Specific case studies

San Miguel Watershed Initiative
Objectives of the program: The goal was to develop, through a process of collaborative planning and substantive public involvement, a basin-wide management plan that conserves and enhances our communities. Its goals include conservation, sustainable resource use, and economic development as well as preservation and restoration of the watershed.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice, provision of funds.

Population context (gender, age, ethnicity, social class, religion and education):

Effectiveness:
- "The boundaries of the watershed were well delineated and helped in identifying an appropriate set of stakeholders. The boundaries used transcended the traditional jurisdictional boundaries to allow the different stakeholders in the watershed to come together.
- Multi-stakeholder partnerships were seen as the key to success of the project. These partnerships were crucial because of the large number of groups that had jurisdiction for resource management in the area.
- Community participation was seen as critical to the San Miguel efforts".

It was reported that CBEP added significant value to the project through its role in integration and coordination, acquiring funding, capacity building and sustainability, early identification of future environmental work and public education and support for environmental initiatives.

Charleston/North Charleston CBEP
Objectives of the program: To improve the quality of the land, air, water and living resources to ensure human health, ecological, social, and economic benefits. More specifically to:
- develop a baseline for environmental conditions
- reduce both lead contamination of soil and childhood lead poisoning
- identify and remediate locations with elevated indoor radon levels
- minimise the effects of environmental contamination from former phosphate/ fertiliser facilities
- provide targeted compliance assistance and pollution prevention information for small businesses.

Type of instrument/mechanism used (existing EPA & new): Education and provision of advice, provision of funds, voluntary measures, setting standards.

Population context (gender, age, ethnicity, social class, religion and education):

Effectiveness: Effectiveness of the CBEP process was demonstrated through leveraging of resources to complete assessments, remediation and other environmental outcomes, increased capacity-building within the community (e.g. lead poisoning prevention training) and nurturing multi-stakeholder partnerships.

It is also reported that the CBEP process brought additional value through community capacity building towards environmental goals, reorientation of EPA programs and providing groundwork for greater collaboration

A table summarising the role of EPA in the five CBEP projects is provided in Appendix 2.

Reference: (US Environment Protection Authority, 2003)

Case study name: Urban ecological stewardship: understanding the structure, function and network of community-based urban land management.

Objectives of the program: To better understand the role of stewardship organisations engaged in urban ecology initiatives in selected major cities in the North-eastern United States of America: Boston, New Haven, New York City, Pittsburgh, Baltimore, and Washington, D.C.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance.

Population context (gender, age, ethnicity, social class, religion and education): One hundred organizations and informal groups from New York City. The groups included: Partnerships for Parks, Council on the Environment for New York City, New York City Department of Parks and Recreation Green Thumb Program and the Harbour Estuary Program.

Effectiveness: The key finding was the discovery of a dynamic social network operating within cities, and a reserve of social capital and expertise that could be better utilised and that stewardship groups take an increasingly significant responsibility for a wide range of land use types, including street and riparian corridors, vacant lots, public parks and gardens and green roofs. These include the delivery of public programs as well as daily maintenance and fundraising support.

Reference: (Svendsen and Campbell, 2008)

4.4 Europe (excluding United Kingdom)

Case study name: Environmental awareness and initiatives in the Swedish and Polish hotel industries.

Objectives of the program: To investigate the influence of the geo-political, economic and socio-cultural context of a country on the environmental attitudes and pro-ecological initiatives incorporated in this sector.

Type of instrument/mechanism used (existing EPA & new): Encouraging higher performance.

Population context (gender, age, ethnicity, social class, religion and education): Three hundred and forty nine hoteliers from hotels in Sweden and Poland.

Effectiveness: The economic situation and pro-environmental efforts initiated by the government were found to have an impact on certain aspects of hoteliers' attitudes and actions. The 'green' image of Scandinavian countries, where considerable emphasis is placed on preserving high environmental quality, was reflected in the attitudes and actions of Swedish hoteliers.

The survey indicated two major directions that need to be followed when introducing environmental sustainability into the hotel industry. The first involves incorporating responsible technical and behavioural practices in the sector. The second highlights the necessity of initiating greater demand for 'green' practices from the customers. In response to emerging customer demand for 'green' operations, combined with the growing evidence of financial benefits from managing resource-efficient facilities hoteliers are more willing to make changes to accommodate pro-ecological programmes.

Reference: (Bohdanowicz, 2006)

Case study name: Ecological citizens: Identifying values and beliefs that support individual environmental responsibility among Swedes.

Objectives of the program: To explore whether, and to what extent, people in general hold values and beliefs in line with what is expected of environmental citizenship, in order to shed light on the feasibility of cultivating ecological citizens in Sweden. The study aimed to determine if the average citizen is a latent ecological citizen, willing to take on a greater pro-environmental responsibility and is responsive to a new set of motivational factors.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures.

Population context (gender, age, ethnicity, social class, religion and education): Four Swedish municipalities (Piteå, Huddinge, Växjö and Gothenburg) that vary in population size from 40,000 to 470,000 citizens and were situated in different parts of Sweden. A randomly selected sample of 4,000 individuals aged 20–75 formed the study group. The socio-economic characteristics (gender, age, education and income) of the respondents were compared with those of an average resident in each of the four municipalities.

Effectiveness: The study concluded that a significant proportion of the respondents do demonstrate a value base consistent with environmental citizenship, i.e., non-territorial altruism and the primacy of social justice. While additional tests and studies are needed, the results support the use of environmental citizenship as a theoretical model for behavioural change.

Reference: (Jagers and Matti, 2010)

Case study name: Motivations for corporate social and environmental responsibility (CSER): A case study of Scandinavian Airlines.

Objectives of the program: The case study aimed to explore the following questions:

1. What internal, sector-specific and external factors influence the interpretation of a company's motivations and, ultimately, its level of commitment to CSER?
2. How do the motivations for social and environmental responsibility of a firm compare in terms of similarities and differences?

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, setting standards.

Population context (gender, age, ethnicity, social class, religion and education): A range of management and employees of Scandinavian Airlines.

Effectiveness: The study demonstrated the degree to which catalysts (the lens through which a company sees and interprets motivations) can have an important impact on its level of commitment to CSER. The study findings highlighted the importance of culture in determining social and environmental motivations at SAS. It was found that the social democratic ideology of the Scandinavian people has a profound influence on the level of SASs social and environmental commitment. The Scandinavian spirit of social and environmental responsibility is embedded in the day-to-day operation of SAS.

The effect that environmental champions have on the interpretation of the influences defined in the model developed help to take environmental responsibility at SAS to a higher level. The study reports that the combination of strong cultural and internal leadership catalysts at SAS is what sets it apart from other airlines operating under similar sectoral and external influences.

Reference: (Lynes and Andrachuk, 2008)

Case study name: Pro-environmental behaviour: Situational barriers and concern for the good at stake.

Objectives of the program: The aim of the study was to investigate the factors affecting willingness to act in an environmentally-friendly manner in a social dilemma framework.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures.

Population context (gender, age, ethnicity, social class, religion and education): One thousand employees at Göteborg University. Employees were from seven different disciplines, including teachers/scientists and personnel administration staff.

Effectiveness: The study revealed that people acknowledge that solutions to environmental problems require collective action. They found that if people trust others to co-operate, they abide by the rule or norm for proper behaviour on the assumption that behavioural changes are less demanding. The study reports that when barriers to change are more pronounced, individual differences in environmental concern could determine whether or not people are likely to engage in environmentally responsible behaviour. For the easy activities, as compared to the more difficult, social and personal norms were stronger, a larger proportion of the colleagues were expected to co-operate, and the co-operation rate was higher. The other difference concerns the impact of environmental citizenship on behaviour. While environmental citizenship was almost unrelated to the performance of easy activities, it had a significant effect on difficult activities.

The study found that it is not too difficult to achieve co-operative behaviour in situations where barriers to change are weak, with a lot possible by emphasising the nature of the social dilemma and highlighting the social interdependency between group members. The possibility to promote a norm for environmentally friendly behaviour should be used. In more trying situations the feasibility of structural changes and technical innovations could be explored. Behavioural modifications could also be facilitated if people place greater weight on environmental values.

Reference: (von Borgstede and Biel, 2002)

4.5 Canada

Case study name: Citizen involvement in sustainability-centred environmental assessment follow-up.

Objectives of the program: To provide lessons for citizen involvement in environmental assessment follow-up from the areas of citizen monitoring, traditional ecological knowledge and community resource management.

Type of instrument/mechanism used (existing EPA & new): Motivational incentives, voluntary measures, education and provision of advice.

Population context (gender, age, ethnicity, social class, religion and education): Community members of the Comox Valley, British Columbia; community-based monitoring based on traditional knowledge in Lutsel K'e, Northwest Territories; and community lobster fisheries management in Eastport Peninsula, Newfoundland.

Effectiveness: Community involvement in determining the purpose, scope and priorities of environmental assessment follow-up monitoring activities is likely to help achieve results that are locally meaningful. The project showed that strong partnerships among citizen groups, government agencies and project proponents are vital to the development of follow-up strategies that engage the public meaningfully and promote effective protection of valued natural and social features. A practical issue may not be how to fit citizen-based monitoring into assessment follow-up but how to fit assessment follow-up into citizen-based monitoring.

Adopting a broad temporal, geographic and topical scope through ongoing monitoring and compliance assurance activities, watershed based analysis, and integration of social and ecological variables leads to several benefits. Follow-up programs that make use of citizen-based monitoring with these characteristics should be better able to track cumulative effects of multiple projects, assess changes in local quality of life, and respond to detected changes with adaptive design and management strategies.

Reference: (Hunsberger et al., 2005)

4.6 Asia

Case study name: Environmental citizenship: What level of knowledge, attitude, skill and participation the students own?

Objectives of the program: The study was designed around the concept of environmental citizenship that gravitates around the Malaysian primary and secondary school student's knowledge, attitude, skills and participation in their daily activities and lifestyles that may bring a positive or negative impact on the environment.

Type of instrument/mechanism used (existing EPA & new): Inform and educate.

Population context (gender, age, ethnicity, social class, religion and education):

Primary school students (1314 respondents)

- The urban respondents represented 52.4 per cent of the sample whereas the suburban respondents represented 47.6 per cent.
- Most respondents were Malays (82.8%), followed by Chinese (9.1%), Indian (2.6%), and other races (5.5%).

Secondary school students (1529 respondents)
- Urban and suburban each represented 50 per cent of the sample.
- Most respondents were Malays (62.3%) followed by Chinese (20.7%), Indians (8.8%) and other races (8.2%).

Effectiveness: The study concluded that the current environmental citizenship level of students is low to moderate. The overall knowledge level about: environmental issues (35%), fauna and biodiversity (20.3%); and international treaties (25%). The students (20.15%) think that they get environmental information mainly from television and newspapers.

The qualitative findings revealed several important intangible aspects related to environmental citizenship, including the need for role models in Malaysian society, a sense of ownership among students towards the environment and commitment to make more effort in everyday conservation that goes beyond convenience.
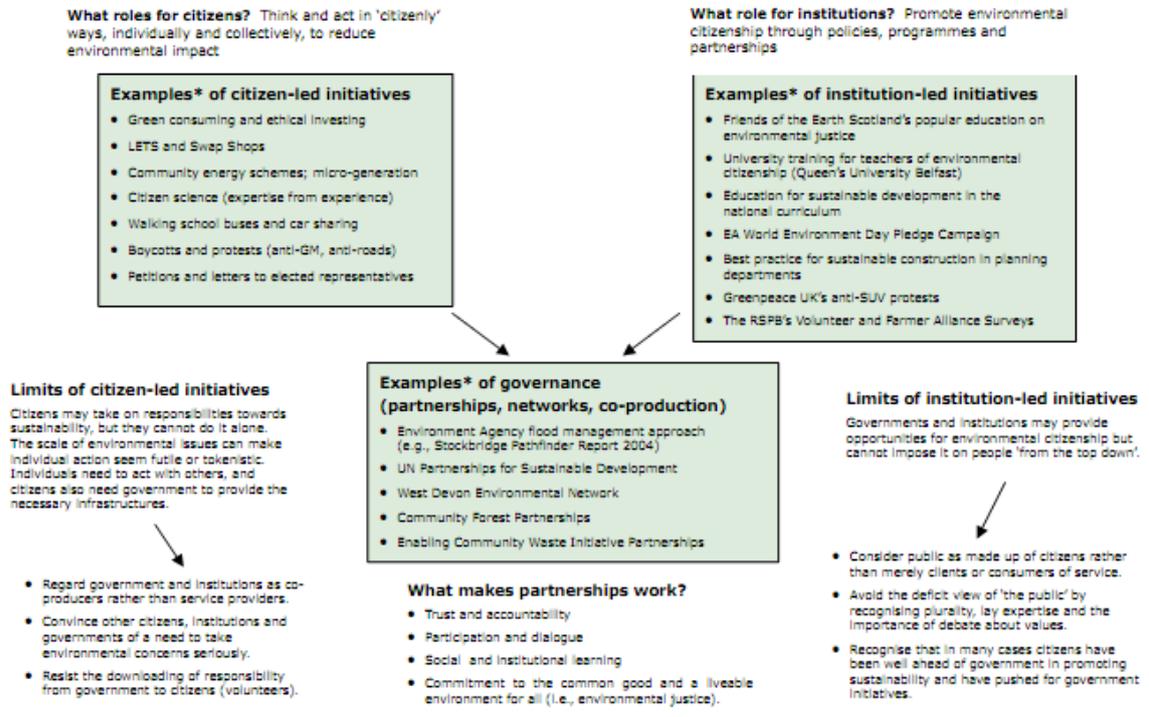
Reference: (Meerah et al., 2010)

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Appendix 1 – Environmental citizenship model

Citizens and institutions: roles and relationships

What roles for citizens? Think and act in 'citizenly' ways, individually and collectively, to reduce environmental impact

What role for institutions? Promote environmental citizenship through policies, programmes and partnerships

Examples* of citizen-led initiatives

- Green consuming and ethical investing
- LETS and Swap Shops
- Community energy schemes; micro-generation
- Citizen science (expertise from experience)
- Walking school buses and car sharing
- Boycotts and protests (anti-GM, anti-roads)
- Petitions and letters to elected representatives

Examples* of institution-led initiatives

- Friends of the Earth Scotland's popular education on environmental justice
- University training for teachers of environmental citizenship (Queen's University Belfast)
- Education for sustainable development in the national curriculum
- EA World Environment Day Pledge Campaign
- Best practice for sustainable construction in planning departments
- Greenpeace UK's anti-SUV protests
- The RSPB's Volunteer and Farmer Alliance Surveys

Limits of citizen-led initiatives

Citizens may take on responsibilities towards sustainability, but they cannot do it alone. The scale of environmental issues can make individual action seem futile or tokenistic. Individuals need to act with others, and citizens also need government to provide the necessary infrastructures.

- Regard government and institutions as co-producers rather than service providers.
- Convince other citizens, institutions and governments of a need to take environmental concerns seriously.
- Resist the downloading of responsibility from government to citizens (volunteers).

Examples* of governance (partnerships, networks, co-production)

- Environment Agency flood management approach (e.g., Stockbridge Pathfinder Report 2004)
- UN Partnerships for Sustainable Development
- West Devon Environmental Network
- Community Forest Partnerships
- Enabling Community Waste Initiative Partnerships

What makes partnerships work?

- Trust and accountability
- Participation and dialogue
- Social and institutional learning
- Commitment to the common good and a liveable environment for all (i.e., environmental justice).

Limits of institution-led initiatives

Governments and institutions may provide opportunities for environmental citizenship but cannot impose it on people 'from the top down'.

- Consider public as made up of citizens rather than merely clients or consumers of service.
- Avoid the deficit view of 'the public' by recognising plurality, lay expertise and the importance of debate about values.
- Recognise that in many cases citizens have been well ahead of government in promoting sustainability and have pushed for government initiatives.

Source: (MacGregor et al., 2005b)

Appendix 2 – US EPA role in CBEP case study

EXHIBIT 7-3 EPA'S ROLE ON CBEP PROJECTS		
Project	**EPA's Role**	**Perspectives on EPA's Role in CBEP Projects**
San Miguel Watershed Initiative	EPA Region 8 primarily provides support through technical assessments of alpine ecosystems and source waters; also participates as an equal partner within the Watershed Coalition efforts	- EPA's best niche is often providing assistance with technical analyses that support the activities of a larger CBEP effort - EPA can and should be part of the CBEP effort by sending representatives to community meetings; on-the-ground visibility is important to acceptance - The importance of EPA funding in forming the Watershed Coalition should also not be ignored
North Charleston/ Charleston CBEP	EPA Region 4 served as a founding partner and has since acted as a guiding force through providing funding, facilitation support, and specialized information	- EPA should take into account community perspectives and differences between stakeholder perspectives when determining its role within a CBEP project - EPA funding is critical to CBEP efforts - To the extent possible (e.g., as allowed by statutory mandates, the need for specialized facilitation, and other circumstances), EPA should consider funding local groups or community members to serve as project organizers - EPA should try to fulfil a niche role, such as providing technical assistance or helping with performance tracking and evaluation
Eastward Ho!	EPA Headquarters initially was involved by providing technical support and funding for brownfields; HQ and Region 4 continue to support specific initiatives (e.g., training programs)	- EPA involvement can provide legitimacy and momentum to a project - Disagreement over best model for EPA HQ involvement: (1) provide funding and allow full local control or (2) directly involve contractors and HQ staff to bring national expertise to bear. Highlights desirability of EPA regional involvement
York, Pennsylvania, Community-Based Strategic Planning and Green Development	EPA Region 3 offered technical support and funding for green development through Green Communities program and other activities	- EPA involvement demonstrates how the Agency can tailor its involvement in an ongoing project, providing intermittent assistance as a niche player and building upon efforts already taking place within a community to maximize efficiency - National expertise delivered by EPA and contractors was useful to city officials, local developers, and others interested in brownfield redevelopment
St. Louis Abandoned Buildings Demolition Project	EPA Region 7 has lead role in organizing and managing the partnership	- The EPA is often uniquely equipped to organize partners around a multidisciplinary issue - "Federal presence" can elevate the profile of the project - The EPA should be sensitive to procedural and cultural norms of municipal departments when organizing city-level initiatives