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State of Play Review of Environmental Policy Integration Literature

Research Series

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An Oifig Náisiúnta um Fhorbairt Eacnamaíoch agus Shóisialta
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An Chomhairle Náisiúnta Eacnamaíoch agus Shóisialta
National Economic & Social Council

State of Play Review of Environmental Policy Integration Literature

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List of Acronyms, Abbreviations and Terms

CAP	Common Agricultural Policy
CBA	Cost Benefit Analysis
CEC	Commission of the European Communities
Comhar-SDC	Comhar- Sustainable Development Council [Ireland]
CPI	Climate Policy Integration
CPPU-UCC	Cleaner Production Promotion Unit – University College Cork
DECLG	Department of the Environment, Community and Local Government [Ireland]
DPSIR	Drivers, Pressures, States, Impact, Response
EAP	Environment Action Programme
EC	European Commission
ECB	European Central Bank
ECSC	European Coal and Steel Community
EEA	European Environment Agency
EEB	European Environment Bureau
EEC	European Economic Community
EIA	Environmental Impact Analysis
EPA	Environmental Protection Agency [Ireland]
EPI	Environmental Policy Integration
ERI-UCC	Environmental Research Institute-UCC
EU	European Union
EU ETS	European Union Emissions Trading Scheme
EURATOM	European Atomic Energy Community
EU SDS	European Sustainable Development Network
ESDN	European Union Sustainable Development Strategy
GDP	Gross Domestic Product
GfSD	Governance for Sustainable Development
GHG	Greenhouse Gas
HEPI	Horizontal Environmental Policy Integration
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ISS21-UCC	Institute for Social Sciences in the 21st Century – University College Cork
NESC	National Economic and Social Council [Ireland]
NESDO	National Economic and Social Development Office [Ireland]

NSDC	National Sustainable Development Council
OECD	Organisation for Economic Cooperation and Development
ProSUS	Programme for Research and Documentation for a Sustainable Society
RDS	Royal Dublin Society [Ireland]
RIA	Regulatory Impact Assessment
SDG	Sustainable Development Goals
SDI	Sustainable Development Indicators
SEA	Strategic Environmental Assessment
SEAI	Sustainable Energy Authority Ireland
SiS-UCC	Sustainability in Society - University College Cork
SET	Strategic Energy Technology
SRM	Sustainable Resource Management
STS	Science and Technology Studies
Teagasc	Agriculture and Food Development Authority [Ireland]
UCC	University College Cork
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Commission for Sustainable Development
UNEP	United Nations Environment Programme
UNFCC	United Nations Framework Convention on Climate Change
VEPI	Vertical Environmental Policy Integration
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Sustainable Development
WEF	World Economic Forum

Summary

Preface

The purpose of the Summary is to provide an abridged overview of our review. Consequently, we have kept academic citation conventions to a minimum in this section. The full elaboration, detail and acknowledgement of our source materials are, contained within the main report.

1 Introduction

Environmental Policy Integration (EPI) has provoked several attempts to provide comprehensive analytic frameworks and syntheses. An initial working definition of EPI is: 'the incorporation of environmental concerns in sectoral policies outside the traditional [environmental] policy domain' (Runhaar et al. 2014). Academic analyses and policy-focused synthesis of EPI emphasise multifaceted approaches rather than advocating a singular understanding.

1.1 The NESC Brief

> *'This work will provide an up-to-date review of the Environmental Policy Integration (EPI) or environmental mainstreaming literature in both academic and policy debates. It will provide an overview of the (i) theory and conceptual development; (ii) methodologies outlined and (iii) provide useful examples of current applications in policy across Europe and internationally'.*

1.2 The Structure of the Report

In *section two* we discuss the 'meaning of integration' and more specifically the issues of 'environmental', 'policy' and 'sectoral' integration and various attempts to provide useful analytical frameworks for EPI. We suggest that the challenges facing EPI are best understood within the context of a multi-dimensional approach to the governance of sustainability.

Despite the fact that sustainable development and climate change appeared to become increasingly decoupled in the 21st century sector empirical cases studies suggest that a conceptual and practical re-coupling is necessary to prevent societal responses to the climate challenge doing more harm than good. We explore the growing emphasis on Climate Policy Integration (CPI) in policy debates and sketch an evaluative framework synthesising recent insights from the literature on CPI and EPI.

In *section three* we consider the relationship between transitions to sustainability and EPI. We begin with a short discussion on sustainability transitions and 'transitions management'. We then consider lessons from the wider landscape scan for new normative horizons and developments in governance with relevance for EPI. The report then moves on to look at reframing of EPI in two distinct policy areas over a longer timeframe; specifically *agriculture and energy* in the EU, showing how changing goals have posed different challenges for integration. This section concludes with an exploration of different cases in geographical clusters across Europe to gain an understanding of both successes and challenges emanating from practical engagements with EPI at the level of implementation.

In the *conclusion* we reflect on the contextual challenges of addressing environmental policy integration and the reframing of sustainability in Ireland as the concept of sustainability transitions begins to enter the lexicon of Irish environmental policy discourse.

2 Integration Imperative: Environment, Sustainability & Climate Change

The concept of integration is not monolithic: one dimension may be more developed than in others, and integration in practice in one dimension does not necessarily lead to integration in others. There is a distinction in the literature between empirical/descriptive and analytic approaches to EPI and more normative approaches connected to *governance for sustainable development*.

2.1 Sustainable Development and Integration

At EU level and in many member states EPI is regarded as a key element of the transition to sustainability. Integration spans topics like: the integration of policy, enhancing institutions for management and crossing sectoral barriers, integration between tiers of government, integrating stakeholder perspectives and conflicting interests, managing knowledge and handling complexity and diversity of science, institutional change, and setting out clear overarching and political goals. Environmental Policy Integration can be explored by disaggregating it constituent elements of 'environmental integration', 'policy integration' and 'sectoral integration'.

2.2 Disaggregating EPI: Environment, Policy and Sector

2.2.1 Disaggregating Environmental Integration

A key distinction is made in the literature depending on whether, the integration of environmental considerations provides a normative orientation to the process of policy for sustainable development giving EPI priority over other societal objectives (principled priority) or a more positive question of how it is actually conceptualised in discourse and implemented in everyday political and policy settings (positive approach). Also referred to as a distinction between strong and weak EPI, we stress that a strong version of EPI does not necessarily imply an absolute priority for the environment, but involves questions about the degree of integration. Since the actual priority given to different objectives can be difficult to measure it is a question of analysing EPI as a matter of degree.

The *concept* of EPI was widely debated in both scientific and political administrative contexts and during the 1990s gained traction through the Cardiff Process in the EU and the academic debate on 'Governance for Sustainable Development'. Rather than being a case of a concept that diffused from the academic into the policy realm, or vice versa, EPI continues to cycle between peaks and troughs of attention and activity involving institutions, networks and structured forums for knowledge transfer between both worlds. This highlights the importance of creating and maintaining spaces where the co-evolution of knowledge and policy can flourish.

The classification of EPI as a process of governing views it as a process anchored in the political system. Institutions, politics and polity have been identified as key elements underpinning the dynamics of successful EPI. Institutions here denote the structural features of political systems, politics refers to the political context, and the cognitive predispositions of the social, legal and administrative traditions of a polity. Environmental integration is likely to be most effective if it occurs in mutually supportive ways across all three dimensions identified.

The dilemma that is often highlighted when it comes to policy *outcomes* is that the influence of EPI activity on the state of the environment and its impact is very difficult to determine. Consequently, much of the analysis is confined to *outputs* from the policy process. Nevertheless, three broad categories of instruments have been reviewed throughout much of the literature i.e. communicative (constitutional provisions, national environmental plans, national sustainable development strategies), organisational ('green cabinets', interdepartmental work groups, task

forces, liaison officers, environmental units in sectoral ministries, cross-sectoral teams) and procedural instruments (Green budgeting, SEA, policy appraisal).

2.2.2 Disaggregating Policy Integration

Lange *et al.* (2013) approach the question of governing towards sustainability by considering different 'modes of governance' in a multi-dimensional approach encompassing the 'triad of political processes (politics), institutional structures (polity) and policy content (policy). The inter-linkage between *politics and polity* helps define the political field and is a two way relationship: politics is embedded in a polity, changes within the political arena can alter the 'rules of the game'. The inter-linkage between *polity and policy* helps determine the institutional setting of policy formulation and implementation, variation or innovation in the policy process can lead to change in the institutional setting and vice versa. The inter-linkage between *politics and policy* denotes the potential of state and non-state actors in specific governance arrangements to actively participate in policy making. Governance has a multi-sector, multi-level, multi-actor character with implications for understanding policy *beyond* the container notion of the nation state. Nevertheless alternative modes of governance often work within rather than in isolation from regulation and that government is still alive and well in governance for sustainable development.

Connections between Policy Integration *and* EPI

Lafferty (Lafferty, 2004) defines EPI as

> *The incorporation of environmental objectives into all stages of policy-making in non-environmental policy sectors, with a specific recognition of its role as a guiding principle for the planning and execution of policy;*
>
> *Accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimise contradictions between environmental and sectoral policies by giving principled priority to the former over the latter.*

EPI may be an aspiration for policy makers, politicians and academics, but there are limits to its achievement in practice, these include:

1. Political factors;
2. Institutional/ organisational factors;
3. Economic/ financial factors;
4. Process management and instrumental factors;
5. Behavioural, cultural and personal factors.

EPI as a Learning Process: Many of the approaches explored either adopt or acknowledge the importance of a *policy learning* approach. Three levels of change have been identifed: recalibrating existing instruments; the adoption of new instruments; a change in goals or 'paradigm change'. Policy frames contain objectives, causal assumptions about problems, and prescriptions about suitable responses. Policy frames and reframing do not simply come about through conceptual learning process, but also through politics and strategic behaviour.

Assessment and Policy Cycles: Meadowcroft and Steurer (2013, p. 10-12) are particularly interested in the integration of assessment practices at different stages of the policy cycle and offer an evaluation of the strengths and weaknesses of a variety of commonly used approaches:

1. *Monitoring* has been pursued through indicators but the linkage between strategy objectives and indicators are rarely made explicit and usually weak, and fail to gain public attention in the same way that economic indicators do.
2. In the case of policy *evaluations* – they find that there is a difficulty even in the language used variously as 'integrated impact assessment', 'sustainability (impact) assessment', 'sustainability (impact) appraisal', strategic impact assessment' but all appear to share an emphasis on bringing together environmental social and environmental considerations and balancing these different substantive concerns in a single appraisal exercise'.
3. In the case of *Peer reviews* – A key strength is that they rely on 'peers' who know the inner workings of public administration and take practical considerations into account in their recommendations. The corollary is that recommendations are usually less critical or demanding than reviews by other categories of evaluators.
4. *Formal audits* play close attention to detail, are grounded in the reality of policy, connected to decision-makers and have high legitimacy, but have no power to change the fundamental orientation or assumptions on which policy rest.
5. *Specialist reports* – conducted by National Sustainable Development Councils, in theory because of the broadly constituted societal bases were free to address hot topics, in practice very few established themselves as critical interlocutors or achieved public visibility.

Comparative Assessments of Sustainable Development Strategies: Pisano *et al.* (2013, p. 6) argue that sustainable development strategies should ideally help to achieve 'better policy coordination and integration in several dimensions: horizontally (across policy sectors); vertically (across political administrative levels as well as territorially, temporally (across time) and across societal sectors (public, private, academia, civil society). The most recent evaluation of sustainable development strategies (Casado-Asensio & Steurer, 2014, p. 445) is quite sombre with respect to their impact and legacy:

1. Sustainable development strategies started out in innovative arrangements to govern sectoral interdependencies. To a certain extent, they went beyond being strategy documents by establishing innovative governance approaches;
2. The central role played by traditionally weak environmental ministries hindered cross-sectoral integration and vertical integration is an even bigger governance failure because in the cases where governments established vertical coordination mechanisms the goals were either too broad or the institutions created often lacked a clear mandate;
3. Most sustainable development strategies lack political commitment and consequently have become administered processes incapable of shaping government agendas or major political decisions;
4. Among the enduring legacies of sustainable development strategies are processes of monitoring and evaluation of progress towards sustainable development. The use of indicator sets and reports have some drawbacks: (a) the tendency to focus on socio-

economic and environmental trends rather than actual implementation; (b) the reliance on often outdated data makes it difficult to revise policies in a timely manner; (c) the findings from monitoring and evaluation are used by administrators and researchers, but go largely unnoticed by politicians and the public.

2.2.3 Disaggregating Sectoral Integration

There are three main elements relevant to the challenges of integration:

1. I*ntegration of policy aspects*, is synonymous with the integration of policy content and different types of policy and organisational instruments outlined in the previous discussion.
2. D*irection of integration i.e.* the distinction between internal, external, horizontal and vertical integration. We suggest that an additional emergent category, diagonal integration, provides a bridge to the debate on sustainability transitions.
3. Stages of integration or degrees of integration.

2.2.3.1 Internal and External Integration

Internal integration, also referred to as intra-sectoral policy integration, is focussed within particular sectors agriculture, energy, transport, *etc*. and concerns the integration of different issues within a policy domain *e.g.*, water, air and soil. External policy integration refers to the coordination and integration of a policy domain with other domains *e.g.*, environment and agriculture or climate and energy. In the case of inter-sectoral policy integration we are referring to *coordination and coherence* between and across different sectoral policy domains.

2.2.3.2 Horizontal and Vertical Integration

Over the course of several studies Lafferty and his colleagues have specified benchmarks for governing mechanisms for EPI. These benchmarks involve the horizontal (HEPI) and vertical dimensions of integration (VEPI) initiatives within governments. The focus is on the responsibilities of governing institutions: ministries, agencies, inter-governmental committees and other bodies deriving their authority from national, regional or local constitutional mandates. Vertical environmental policy integration indicates the extent to which governmental sectors have taken on board and implemented environmental objectives as central in the portfolio of objectives the sector continually pursues. Lafferty (2012a, p. 37) has specified a checklist of operational mechanisms related to the responsibility of ministries:

1. Scoping reports of sectoral activity identifying major environmental impacts associated with key actors and processes;
2. Sectoral forums for dialogue and consultation with relevant stakeholders and affected citizens;
3. Sectoral strategies for change, with basic principles, goals, targets and timetables;
4. Sectoral action plans with specified initiatives for achieving goals with target-group related policy instruments;
5. Green budgets for highlighting, prioritising and carrying through action plans;

6. Monitoring programmes for evaluating implementation and revising strategies and action plans.

HEPI involves the question of integrating environmental concerns within governments*: i.e*. across sectoral policy and responsibility. Lafferty proposes a list of benchmarks for HEPI:

1. A 'constitutive' mandate providing principles and procedures for reconciling conflicts and trade-offs related to de-coupling and environmental policy integration;
2. An over-arching strategy for sustainable development goals and operational principles, and a political mandate for implementation with direct backing from the chief executive authority;
3. A national action plan with over-arching and sectoral targets, indicators and timetables;
4. A responsible executive body with designated responsibility (and powers) for the overall coordination, implementation and supervision of integration process;
5. A communications plan stipulating sectoral responsibility for achieving overarching goals, and outlining how cross-sectoral communications are to be structured and made transparent;
6. An independent auditor with responsibility for monitoring and assessing implementation at both government and sectoral levels, and for proposing revisions in subsequent generations of strategies and action plans;
7. A board of petition and redress for resolving conflicts of interest between environmental and other sectoral objectives, interests and actors.

There are, however, additional considerations as EPI is not being sketched on a blank canvas. The challenge fo research is to document, through evaluative research:

1. Barriers, institutional inertia and procedures critical to sustainable development;
2. The challenge to change the qulaity of economic growth through innovation and social learning; highlight and disseminate good practice; and,
3. The clear dependence of economic and technical steering instruments on historical, cultural and social conditions.

Diagonal Integration: An emergent category for EPI? When horizontal policy integration occurs not at a single level of government but is carried further across vertical tiers of governance, one can speak of 'diagonal policy integration' (Berger and Steurer 2009 p.4). A number of convergent developments in broader literature are explored to suggest that closer attention will have to be given to diagonal policy integration in the future:

1. The increasing use of 'framework directives' and 'road maps' in EU policy;
2. The recognition that a simplistic scalar separation of mitigation (national and international) and adaption (local and national) is problematic**;**
3. The growing cross fertilisation between the governance and sustainability transitions literature.

2.2.3.3 Stages and Degrees of Integration

The third element refers to *stages of integration* ranging from differentiation to integration including: differentiation, coordination, cooperation and integration. Janssens and Van Tatenhove (2000, p. 324) identify the differences as follows:

1. Differentiation implies no coherence where policy sectors remain fully independent;
2. During coordination procedures and administrative instruments can achieve coherence (including adjusted policies or goals) while the sectors remain largely independent;
3. Cooperation is characterised as 'coordination plus' where sectors work together to formulate partially mutual policies;
4. In the last stage, integration a new unity is created and no distinction can be made between sectors.

A more frequently employed approach sees EPI as a matter of degrees of integration ranging from slight adjustment in non-environmental sectoral policy sectors to more substantial or reformist challenges and alterations of thought (Storbjörk & Isaksson, 2014, p. 1025). *Coordination, harmonisation and prioritisation* are highlighted:

1. Coordination of policies to avoid contradiction is a limited form of integration;
2. Harmonisation means bringing environmental objectives on equal terms in order to promote synergies;
3. Prioritisation means seeing environmental sustainability as an overarching principle that allows environmental objectives to be integrated at all stages of policy making as a guiding principle.

2.2.3.4 Integration and Coherence

An additional consideration is the question of 'coherence' highlighted by the OECD and EU,. Coherence has increasingly been treated as a distinct but related topic to EPI. Stead and Meijers (2009, p. 328) summarise a number of challenges for coherence:

1. The desire for coherence can result in high degrees of centralised control and a consequent loss of flexibility in the policy-making system;
2. The gap between the need for coherence and the capacity to achieve it is conditioned by the complexity of governance and the multifaceted nature of public policy;
3. A related challenge is that the economic, social and political domains often operate with separate internal logics of coherence;
4. In democratic political systems, incoherence cannot be avoided but requires management and where synergies cannot be found political choices must be made.

2.2.3.5 Challenges for EPI

Understanding the contexts and characteristics of sectors is of vital importance. Sectoral regulatory capacity is a key factor for EPI that depends on the resources, legal competencies, legitimacy and target group support, and information on the sector regulatory authorities. While higher levels of government often set general policy objectives and principles, lower levels are

responsible for 'realising' integration through cross-sectoral operational programmes and projects.

2.3 Sustainable Development and Climate Change

While climate change is often represented as a sustainable development challenge *par excellence* the literature suggests that this was not necessarily always the case. Sustainable development only figured marginally and gradually in the climate debate prior to 2007.

2.3.1 The relationship between EPI and Climate Policy Integration (CPI)

Integrating the objective to reduce greenhouse gas emissions into other sectoral policies at the European and national level is referred to as 'climate policy integration' (CPI). Casado-Asenio and Steurer (2012, p. 3) offer a comprehensive definition of CPI as the development of a set of tools to change the process of policy making:

1. Across policy sectors;
2. Across levels of governance within the same policy field, and/or;
3. Across sectors and levels of governance at the same time, to ensure that climate mitigation and adaptation measures are taken into account (weak interpretation) or even given principled priority (strong interpretation)'.

Casado-Asensio and Steurer (2014, p. 459) performed a comparative assessment of National Sustainable Development Strategies, National Mitigation Strategies and National Adaptation Strategies. They conclude that integrated strategies are constrained by three sets of variables:

1. Despite their win-win rhetoric, the economy-environment axis usually ranks environment second, in particular when global economic competitiveness is at stake;
2. Integrated strategies were not able to change the fact that policy-making and the actors involved continue to operate along sectoral and regional lines;
3. Institutional, cultural and social factors (including path-dependency and inertia) continue to thwart timely and adequate implementation.

2.3.2 Evaluating CPI

Mickwitz *et al.* (2009 p.23) have developed a set of evaluative criteria for CPI that refers to: *inclusion, consistency, weighting, reporting and resources*.

1. *Inclusion* refers to whether mitigation and adaptation (or perhaps sustainable development) is explicitly included in a policy;
2. Unless policy addresses the issue of overall *consistency* between goals and instruments it does not amount to integration;
3. The third criterion combines the 'reciprocity' and 'priority' criteria as weak and strong elements of a *weighting* criterion. In the context of mitigating and adapting to climate change, there will invariably be conflicts and compromises between policy areas. In some cases, win-win scenarios are possible, but in other cases balancing may not be and possible hard political choices will have to be made;
4. *Reporting* emphasises the importance of feedback for policy implementation including: the degree to which strategies specify measures for follow up and reporting *ex ante*; and how information on mitigation and adaptation, including policy instruments for implementation are included in *ex post* evaluations;

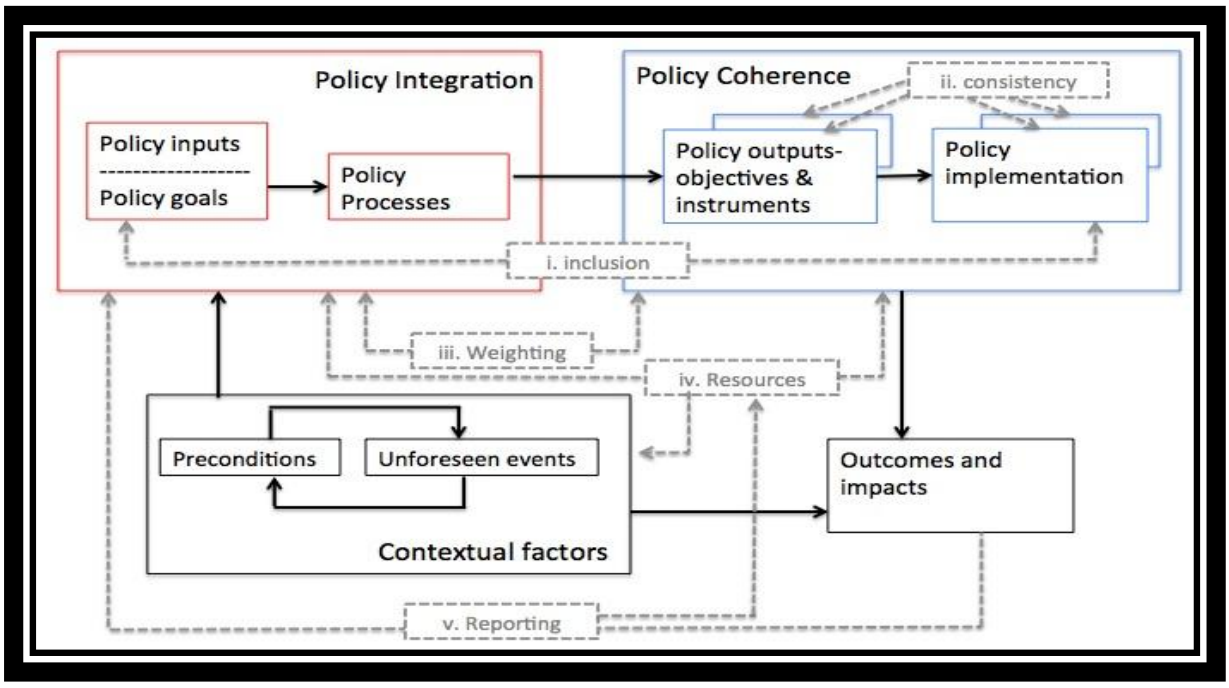
5. The final criterion *resources* covering knowledge including know-how of those involved; the time they are able to spend on these issues; and the resources at their disposal.

2.4 Towards an Evaluative Framework

Runhaar *et al.* (2014) have proposed a framework for the evaluation of EPI:

1. 'Inclusion and consistency' are important for the assessment of policy outputs in terms of formal decisions. These criteria indicate whether and how (consistently) environment and climate concerns are taken into account, but not to what extent;
2. In order to measure the *extent* to which environment and climate concerns are taken into account during various stages of the policy cycle they invoke the weighting criterion during the policy cycle and seek to operationalise it using a distinction between coordination, harmonisation and priority to distinguish between degrees of integration as regards sectoral priorities;
3. By assessing performance throughout the policy cycle, the *reporting* criterion could be taken into account;
4. Despite the challenges of *linking outputs and impacts to environmental quality* they suggest that various estimations should be possible (*e.g.,* using EIA or SEA, or factoring in medium term assessments like State of the Environment Reporting on Environmental Performance Reviews);
5. While they do not integrate the *resources* criterion *per se*, some resources are more tangible and quantifiable, *e.g.,* budgets, staffing; others are more intangible and qualitative, *e.g.,* networks and knowledge but could be mapped in specific sectoral and cross-sectoral cases and factored into any evaluation.

Taking these observations on board we have tentatively mapped these criteria onto Nilsson *et al.* as shown below.



3 Transitions and Integration: Lessons from different levels

Pisano *et al.* (2014) have examined a number of key international initiatives that are relevant to transitions to sustainable development. We suggest that these may well exert pressure on national governments to continue to strive for the integration of policies, including EPI.

3.1 Lessons from the wider landscape: Developments in global governance

Pisano *et al.* (2014, p. 16) argue that the global financial crises has triggered international efforts for more sustainable ways They have identified four prominent international initiatives that they argue exhibit important characteristics of sustainability transitions:

1. OECD's (Organisation for Economic Cooperation and Development) Green Growth;
2. UNEP's (United Nations Environment Programme) Green Economy;
3. World Business Council for Sustainable Development's (WBSCD) Vision 2050;
4. United Nations Post 2015 Agenda and proposals for Sustainable Development Goals.

3.1.1 The Post-2015 SDGs and the 7th EAP: 'New' Normative Horizons for EPI?

Recent developments in the global governance literature though perhaps not scalable in terms of the national and subnational adaption of EPI contain some concepts and lessons that are of significance to our discussion.

3.1.1.1 Global Horizons for EPI

Nilsson and Persson (2012) argue that we need to take a step backwards, before moving forwards by considering three core *functions of governance*:

1. To *reduce system stresses, risk and vulnerabilitie*s; this involves traditional environmental policy supplemented by knowledge exchange on norms and safeguards and includes: regulation and standards; data collection and monitoring; organised knowledge exchange and mechanisms for adaptive governance.
2. To *trigger and navigate transformation of economic activity;* this implies a redirection of government budgets to facilitate transformation to a more sustainable economy rather than bolstering consumption. Green public procurement and public private partnerships have a role to play here, as do taxation instruments that internalise the social costs of environmental pressures.
3. To *develop a diversity of options* which is a key element in the transitions debate. 'A key element of governing transformative change is the identification of alternative futures and the assessment of their viability and desirability'.

3.1.1.2 EU Horizons for CPI

Rietig (2013) reflecting on CPI in the EU suggests that there are two options for determining criteria for 'sustainable climate policy integration':

1. Science based quantitative sustainable development indicators (SDIs),and;
2. Policy based sustainability strategies such as the EU Sustinable Development Strategy.

She suggests an alternative methodology rooted in linking four key policy objectives of the EU SDS (environmental protection; economic prosperity; social equity and cohesion; international

responsibilities) with sustainable development guiding policy principles (policy integration and coherence; environmental protection; socio-economic development; justice and participation).

3.1.1.3 The Interplay between the global and EU levels

Endl and Berger (2014, p. 39) detect tentative steps at alignment with global challenges and discourses in the 7th EAP, but conclude that such a sectoral policy strategy will not be able to achieve policy coherence, but will require a meta-strategy for sustainable development.

3.2 Shifting Integration Paradigms? Lessons from Agriculture & Energy

The Common Agricultural Policy (CAP) is a cornerstone and one of the oldest policies of the EU. Beginning in the 1962 with the aim of price support and food security, in the intervening half-century it has undergone periodic revision represented by evolving objectives including environmental protection and in latter years rural development. More recently, the 2013 CAP reforms placed sustainable development as a core objective of the programme. It can be seen that policy integration has evolved from the point, where traditionally it was considered that agricultural and environmental objective were intrinsically aligned to where it is now consider necessary for explicit environmental policy integration, although the absence of consideration of climate change is noteworthy and in direct contrast to the situation in the energy sector.

While the EU only has formal competency with respect to energy since the 2007 Lisbon Treaty, the EU has a long history of policies relating to energy, including since the late 1990s attempts to integrate environmental aspects. In contrast to agriculture, the initial moves to consider environmental issues in energy policy appear to have arisen from environmental concerns – more recently the growing awareness of climate change has intensified efforts to integrate environmental and energy policies. However a contrast with agriculture is very evident, the policy integration paradigm for energy has notably shifted from one of sustainable development in the late 1990s to the current situation where the climate change agenda has all but captured ''environmental' dimension of the sector leading to such apparent anomalies as 'sustainable nuclear energy' and a possible over emphasis on biofuels. This lack of consistency across policy boundaries makes successful environmental policy integration more difficult and may lead to conflicting policy instruments where the domains intersect *e.g.,* biofuels in the case of energy and agriculture.

3.3 Lessons from local sectoral integration in European Regions: Niche level innovation?

The table below presents a summary of successes achieved and the challenges faced by a number of environmental policy integration case studies. The selection of the cases was conditioned by the availability of case studies that evaluate the successes and/or challenges to EPI and a desire to use geographical clusters of cases. The selected cases studies were sourced from three regions *viz.,* Britain and Northern Ireland, the Nordic Countries and the Netherlands.

Table (a): Selected Case studies

Case Study	*Success*	*Challenge*
Sustainable Agricultural Landscapes in the UK	High level of 'buy-in' among farmers	Farm-by-farm approach leads to landscape fragmentation
Zero-carbon homes agenda in England	Involvement of industry in process	Risk of incumbent actors capturing the agenda and setting key policy parameters.
Renewable Energy Deployment in Post Devolution Wales	Local involvement in decision-making	Local focus has potential to lead to stress local rather than global environmental issues

Case Study	*Success*	*Challenge*
Integrating Land-use Planning and Transportation in Belfast	Potential for integration suggested by framing of the N. Ireland Regional Transport Strategy as a daughter document of the Regional Development Strategy	Stop-start pattern of policy development and the short-termism inherent in the policy lifecycle
Marine litter in Scotland	The required clarification on competencies presents an opportunity for introduction of subsidiarity principle.	Risk of EPI being 'lost in the noise' of inter-departmental negotiations
Waste management in the UK	Vertical integration facilitated significant environment performance improvement	Limitations to horizontal integration at local government level
Agri-environmental and energy policies in rural Finland	Good uptake of support measures in both policy domains	Lack of necessary links between actors, practices and knowledge resulted in misaligned policies
Waste Management in Sweden	Mix of policy modes utilised	Lack of supporting structures, normative structures and knowledge systems for new policy modes
Environmental policy integration in Swedish bioenergy policy	Requires concrete goals, with measureable metrics for multi-sectoral EPI	Non-alignment of goals of related policy domains *e.g.*, agriculture and energy in the case of bioenergy. [This can be exacerbated by the division of competencies]
Spatial and Urban integration in the Netherlands	Development of innovative planning tools which assist in the integration of environmental aspects in spatial plans	The approach does not provide for reconciliation of scientific inputs or of competing values
Mainstreaming Climate Adaptation into Urban Planning in the Netherlands	Synergies with other policy objectives (if exploited) serve to enhance the process of mainstreaming climate adaptation	Conformist approach taken in some integration attempts reduce

The Porter hypothesis suggests that well-designed regulations will stimulate innovation, which will ultimately result in benefits to economic actors. There is a compelling argument that different types of policy instruments are necessary to bring about environmental improvements by both actors, which occupy 'beyond compliance' positions and those who may be termed performance laggards. This could include the use of non-prescriptive approaches to stimulate radical action in those who are beyond compliance, and more prescriptive approaches to force incremental improvements, building on existing solutions in less proactive actors. In this way front-runners can set the bar high and co-create new norms.

4 Conclusions: Challenges for Ireland

Rather than attempting to arrive at a synthetic conclusion we instead look to the contextual challenges of addressing environmental policy integration and the reframing of sustainability in Ireland. We give a tentative sketch of emergent landscape of policy and research that might act as a resource for future reflection and debate.

4.1 Ireland: A Challenging Environment for Integration?

Post 2008, the arithmetic of contemporary crises has been explored in all sorts of different permutations. It has been called a double/dual crises –unsustainable consumption (climate change) fuelled by unsustainable debt (financial crisis), a five dimensional crisis (NESC, 2009, 2014b) a crisis of governance where the future is shaped by an exogenous 'troika' of the IMF, EC, ECB. Hardiman (2012, pp. 225-6) sees three constraints on the exercise of sovereignty in Ireland and beyond. The first relates to the politics of the Eurozone, which constrains nation states capacities to devise their own solutions. The second relates specifically to the conditionality of the EU-IMF bailout, which limits sovereign policy choice severely. The room for autonomous manoeuvre in light of these constraints is tempered by the recognition that there are potential risks to political legitimacy and political sustainability if austerity goes beyond a tolerable threshold. The third constraint relates to the fact that 'the scope of national governments to make effective sovereign choices for their own citizens is constrained by growing economic interdependencies'. The governance of sustainable development, including EPI has to contend with contextual conditions wherein the nature of governance itself is in transition and the future is uncertain.

Sustainable development has helped to accelerate the diffusion of new policy instruments, mechanisms and institutional designs in Ireland. The OECD Environmental Policy Review of Ireland (2010, p. 10) confirms that sustainable development had made some progress up to 2008 as 'governance for sustainable development was consolidated' with Comhar the Sustainable Development Council (SDC) acting as a multi-stakeholder forum providing independent advice to government and also functioning as an important institutional mechanism for *horizontal policy integration*. Comhar SDC and its functions have been absorbed by the NESC and we contend that NESC has a vital role to play both in creating spaces where the co-evolution of knowledge and policy can flourish, and in facilitating a debate on EPI in Ireland through its networks.

Successive analyses have highlighted the underdeveloped nature of the vertical dimension of governance in the context of sustainable development in Ireland. The integrative dimension of governance for sustainable development is regarded as being particularly problematic in terms of *vertical integration* with no intensive coordination between the national and subnational [sustainable] development processes. There is also a very strong impression that poorly articulated vertical linkages lower the expectations about what can be achieved.

Although the idea of *diagonal environmental policy integration* has not featured to any great extent in the Irish discourse on sustainability, discussions of poverty and social inclusion public sector reform, local government reform and new regional governance in Ireland have consistently stressed the need to focus on the challenges of diagonal policy integration.

4.2 Reframing Sustainability

In reviewing the state play for EPI we have seen the growing significance of the debate on sustainability transitions. While it is beyond our scope here to give a comprehensive assessment of its impact on Ireland we can see tentative indications of the reframing of the sustainability

discourse on the policy side and on the academic side that could provide a resource for future research. 'Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal' was adopted by the Irish Government in December 2008. It sets out a set of actions to reorganise the economy over a five-year period (2009-2014) and to secure the prosperity of current and future generations. The 'new engines of growth' are investments in renewable energy, new technologies and innovation, combining higher productivity and higher energy efficiency through various sectors. In the preface to 'Our Sustainable Future: A Framework for Sustainable Development in Ireland, the Taoiseach, emphasises the need to look beyond the current economic crisis: 'forging a vision of how we can transition Ireland to a resource efficient, low carbon and climate resilient future'. In policy terms there is an increasing focus on transitions in different policy sectors by key institutions and agencies: for example NESC have placed particular emphasis on energy transitions in their work on climate change and wind energy.

To date the transitions for sustainability perspective has been applied only to a limited extent in Irish research, but it is gathering momentum in the context of climate change, sustainable energy systems/ smart grids, renewable electricity, spatial planning, sustainable community, transitions in consumption, social innovation, sustainable consumption and sustainable regional development. Most of this research adopts the elements of the multi-level perspective on transitions and integrates discussions of horizontal and vertical integration to a greater or lesser degree. In the specific case of CPI there are a number of reports that deal specifically with the challenge of climate adaptation that explicitly use the HEPI-VEPI framework for analysis.

There is very little evidence as of yet of a debate on 'transitions management' taking root. The Draft Heads of Climate Action and Low Carbon Development Bill gives centrality to the concept of transition with an 'Annual Transition Report' which is envisaged to report on progress on 'transition to a low carbon, climate resilient and environmentally sustainable economy in the period up to and including the year 2050'. The emphasis is on the governing and reporting mechanism by which the government shall delegate and monitor transition; the mechanism by which transition shall be accomplished is not specified. We expect that addressing this question might well provide a space for the sharing of knowledge between science and policy in the very near future.

State of Play Review of Environmental Policy Integration Literature

1 Introduction

If pressed to classify the story of 'environmental policy integration' (EPI) as a genre, we might reasonably call it epic: the face of sustainable development that launched a thousand reflections. EPI has provoked several attempts to provide comprehensive analytic frameworks and syntheses (Adelle & Russel, 2013; EEA, 2005a, 2005b; Jordan & Lenschow, 2008b, 2010; Lafferty & Hovden, 2003; Mickwitz et al., 2009; Nilsson & Persson, 2003; OECD, 2002; Persson, 2007; Rietig, 2013; Runhaar et al., 2014). The most recent of these by Runhaar *et al.* (2014) provide an initial working definition of EPI as 'the incorporation of environmental concerns in sectoral policies outside the traditional [environmental] policy domain'. The elegant simplicity of this definition, as they acknowledge, has not been reflected in practice and belies layers of complexity. In some senses, what follows here might well be regarded as simply another state of the art. Yet, despite the frequent fulminations of analysts about limited realisation of the concept translated from theory to practice, it shows little sign of going quietly into the night.

EPI has evolved recursively over four decades at the interface between policy, politics, and science (including political and social science) at national, supranational (*e.g.,* EU) and international/ global levels (*e.g.,* UN, World Bank, Intergovernmental Panel on Climate Change [IPCC]). Several researchers (Brown, 2013; Collier, 1994; Liberatore, 1997; Weale & Williams, 1993; Weale et al., 2000) have traced its mandated evolution (Kent, 2014; Lafferty & Hovden, 2003; Lafferty, 2002) through international treaties and high level agreements at EU and UN level and it has come to prominence once again in academic discussions on global environmental governance (Biermann, Davies, & van der Grijp, 2009) and more recently in discussions of post-2015 'Sustainable Development Goals' (Biermann et al., 2014). Discussions of EPI are not simply the stuff of armchair academic musing (though there is much), but are present in evaluative and analytical programmes and policies of the World Bank (Cashmore, Richardson, & Axelsson, 2014), OECD (EAP Task Force, 2009; Lehtonen, 2008; OECD, 2002, 2008), EU and UN (Amhad, 2009; UNCSD, 2011), which we would argue are more likely to be treated far more seriously in the Irish context than any indigenous academic input to the debate. EPI is also used by organisations like the European Environment Agency (EEA, 2005a, 2005b, 2006), European Environment Bureau (EEB, 2010) and the European Sustainable Development Network (ESDN) as a comparative metric, or at least a useful heuristic of sustainability in cross-national comparisons.

Increasingly, EPI is also appearing in national and regional studies outside of the EU *e.g.*, China, Japan and East Asia (Bina, Ausra, & Zhang, 2009; Niizawa & Moritomi, 2014; Olsen & Zusman, 2014; Persson, 2008; Ueta & Adachi, 2014). The pre-eminence and popularity of EPI in diverse policy sectors and communities has waxed and waned, but just as it appears to go into abeyance in one policy domain, in any given policy cycle, it appears resurgent in another. Certainly, by the mid-2000s, the political currency of EPI in the EU seemed to falter (Brown, 2013). As we survey the literature, we see the recurrence of the concept, its discovery and rediscovery, renewal and often re-tooling for application to 'new' policy fields. Referring to EPI in the singular is of course ill-advised and inadvisable – several of the foundational statements in the academic literature (Lafferty & Hovden, 2003; Lenschow, 2002; Persson, 2004, 2007) as well as more recent syntheses and analytic frameworks (Adelle & Russel, 2013; Jordan & Lenschow, 2008a; Rietig, 2013; Runhaar et al., 2014) emphasise multifaceted approaches rather than advocating a singular understanding. An overview by the Stockholm Environmental Institute (Persson, 2004) gives an excellent summary of the theoretical frameworks used in the debate and the state of play published by the EEA in 2005 is still referenced as seminal by much of the literature we have reviewed.

EPI and cognate concepts of policy integration in other fields, like Climate Policy Integration (CPI) do not occur in a vacuum. Calls for more coherent, 'joined up', integrative approaches to policy and politics in environment and sustainable development follow a similar trajectory and timeline to calls for increased interdisciplinary interaction in the academy. What is remarkable is the spread of the of the concept within and across: policy domains; academic disciplines; the science-policy gap (Wesselink, Buchanan, Georgiadou, & Turnhout, 2013); the EU (Bongardt, Nilsson, & Persson, 2008; Buchner, Catenacci, & Sgobbi, 2007; Hertin & Berkhout, 2003; Solorio, 2011) and internationally *e.g.*, Africa (Funke & Roux, 2009; Nunan, Campbell, & Foster, 2012), Asia (Bina et al., 2009; Niizawa & Moritomi, 2014; Olsen & Zusman, 2014; Persson, 2008; Quitzow, Bär, & Jacob, 2013; Ueta & Adachi, 2014), Australia (Bührs, 2009; Dovers, 2005; Ross & Dovers, 2008), Canada (Bizikova, 2007), US (Hoornbeek, 2008; Keysar, 2005); scales of governance/ multilevel governance, *etc*. (Christopoulos, Horvath, & Kull, 2012; Meadowcroft & Steurer, 2013; Newig & Koontz, 2014; Voß, Newig, Kastens, Monstadt, & Nölting, 2007).

The sheer scale and scope of EPI, means that conventional biblio-metric analyses are inadequate to doing justice to its spread, we can certainly note that specific academic journals (*Climate Policy; Environmental Impact Assessment Review; Environment and Planning B & C; Environmental Policy and Governance; Environmental Politics; International Environmental Agreements; Journal of Environmental Policy and Planning; Local Environment; Policy Sciences*) revisit the topic over time but none specialise *per se*. Examining the references of both academic and policy community engagement with EPI we observe that Lafferty and Hovden, Lenschow and Jordan and Persson recur with impressive frequency as do EEA, OECD and more recently the

ESDN. In Antipodean contexts, Bührs and Dovers work is influential and to some extent ahead of the curve with respect to European debates that increasing foreground Sustainable Resource Management (SRM). Equally, we find recurrent references to EPI in emergent interdisciplinary spaces like ecological economics, transitions studies and the related space of socio-ecological theory (*Ecological Economics; Ecology and Society*). One could reasonably argue that there is a self-replicating dynamic at play, an artefact or residue of academic practices and citation indices, migrating to and mimicked in policy discourses – products of an audit culture. We suggest that this is too reductive and simplistic.

1.1 Interpreting the NESC brief

> *'This work will provide an up-to-date review of the Environmental Policy Integration (EPI) or environmental mainstreaming literature in both academic and policy debates. It will provide an overview of the (i) theory and conceptual development; (ii) methodologies outlined and (iii) provide useful examples of current applications in policy across Europe and internationally'.*

The full brief is reproduced in the appendices, but we can distil three central challenges that we are tasked to address. The first is where environmental mainstreaming and policy integration are live in the policy context. This is fundamentally a question of praxis – where theory meets practice. The second challenge is to assess the gap between 'rhetoric and reality' classically thematised many years ago in the Irish context as the gap between 'promise and performance' in Irish Environmental Policy (Blackwell & Convery, 1983), but all the more complex as we move from vagaries of 'catching up' in terms environmental political/policy modernisation to more anticipatory, integrative and dare we say it – sustainable approaches to development. The final challenge is to comment on the implications for Ireland, recognising that a comprehensive assessment is beyond our remit, but that the 'domestication' and 'contextualisation' of an international debate is a pre-requisite for translating general trends into specific applications.

For the purposes of this report we have interpreted 'methodologies outlined' as the strategies, tactics, tools and techniques explored in studies of EPI as opposed to strategies of inquiry *we* employ. For the record, we have conducted 'desk research' on what has become quite a rich, substantial and variegated academic and policy field. Although we have some considerable experience in the academic application of EPI we must acknowledge that a 'visualisation' by Endl and Berger (2014)[1] provided us with a perspective on the constituent elements of EPI that acted as a sensitising heuristic that informed our reflections.

Within the boundaries of our brief and the confines of our capacities, we can minimally specify some of the available resources that might contribute to the 'toolbox' of those tasked with decoding general principles, paradigms and practices and translating / adapting them into

[1] A slightly modified version is included in the appendices.

contextual responses to the challenges identified herein. To be clear, neither our remit, nor our repertoire, extend to 'tick-box' solutions, recipes or synoptic strategies for sustainability. In our experience 'oven ready' solutions are always 'par-baked' at best.

1.2 The Structure of the Report

We begin in *section two* by specifying the concept of Environmental Policy Integration (EPI) by examining the 'imperative of integration' introduced by the debate on sustainable development and more recently by the debate on climate change. In the first instance we discuss the 'meaning of integration' and more specifically the issues of 'environmental', 'policy' and 'sectoral' integration and various attempts to provide useful analytical frameworks for EPI. We suggest that the challenges facing EPI are best understood within the context of a multi-dimensional approach to the governance of sustainability (Lange et al., 2013). We highlight the importance of focusing on both the direction and degree of integration; the issue of policy coherence; and, the challenges facing EPI.

We consider the fact that while the challenges of sustainable development and climate change are often treated as synonymous, they have gone through a process of coupling, decoupling and recoupling over the last three decades. Rather than resulting in synergistic outcomes, climate change and green growth have temporarily eclipsed sustainable development as a reference point for *paradigm change* in contemporary society. Nevertheless, as theoretical and empirical studies explore the challenges of climate change and integrative low carbon socio-economic development approaches, there appears to be a rediscovery of many of the contradictions identified in earlier debates on sustainable development. In other words, events in the latter part of the first decade of the 21st century like the 4th Assessment of the IPCC, the publication of the Stern Report and Al Gore's 'inconvenient truth' quickly acclimatised to the global economic and financial crises valorising notions of 'green growth' and 'green Keynsism' as a corrective to exogenous shocks of global recession/ depression (Barry, 2011). Despite the fact that sustainable development and climate change appeared to become increasingly decoupled in the 21st century sector specific studies seemed to suggest that a conceptual and practical re-coupling is necessary to prevent societal responses to the climate challenge doing more harm than good. While the *neologism* 'climate policy integration' (CPI) arrived on the stage in the 'noughties', its provenance as progeny or orphan of EPI remains disputed. The section concludes with an attempt to sketch an evaluative framework for EPI based on Lafferty and Hovden (2003), Mickwitz *et al*. (2009) and Nilsson *et al.* (2012) following recent suggestions by Runhaar *et al.* (2014)

In *section three* we consider the relationship between transitions to sustainability and EPI. We begin with a short discussion on sustainability transitions and 'transitions management' (Loorbach, 2010). We then consider lessons from the wider landscape scaning for new normative

horizons and developments in governance with relevance for EPI. The report then moves on to look at the reframing of EPI in two distinct policy areas over a longer timeframe; specifically *agriculture and energy* in the EU, showing how changing goals have posed different challenges for integration. Aside from the fact that these sectors were the focus of exploratory expeditions on the terrain of EPI by Lenschow (1997) and Collier (1994), they were also the focus of a ground breaking contextual analysis in Sweden by Nilsson et al. (2007). More recently, they have gained attention in terms of exploring the 'limits of integration' and different *vectors* of integration in different *sectors i.e.* EPI in agriculture and CPI in energy. This section concludes with an exploration of different cases in geographical clusters across Europe to gain an understanding of both successes and challenges emanating from practical engagements with EPI at the level of implementation. Here we reflect some brief reflections on the relation to regulation.

In the conclusion we reflect on the contextual challenges of addressing environmental policy integration and the reframing of sustainability in Ireland as the concept of sustainability transitions begins to enter the lexicon of Irish environmental policy discourse.

2 Integration Imperative: Environment, Sustainability & Climate Change

It is common in many discussions of EPI to begin with a discussion on the meaning of integration. The semantics of 'integration' in common parlance imply 'unity, balance, coherence, stability, order, consensus, absence of conflict and contradictions' (Bornemann, 2008, p. 2). Bornemann contends that by corollary, considerations of opposing concepts like 'differentiation, disintegration, fragmentation, segregation, assimilation, cooperation, conflict', bring the problem of integration into sharp relief. In this respect, he references some of the central building blocks of the sustainability transitions literature (Avelino & Rotmans, 2009) that the crisis of contemporary society opens up opportunities (indeed imperatives) for recalibrating systems of governance in the 21st Century. Rather than event driven, episodic 'shocks' (flood, storms, drought, *etc*.) to the system (Hernes, 2012), there is a growing sense that contemporary crises are systemic, epochal and potentially catastrophic (Bauman, 2010; Caraça, 2012; Raskin, 2009). Caraça, in the book 'Aftermath' places our contemporary challenges within the wider context of a crisis of modernity, whereas Baumann and Raskin characterise the nature of such a crisis as an 'interregnum' where change is taking place but the contours of a new socio-political order are not yet fully formed. The need for integration can be seen as a result of transformations in the social order in which governance is not just an action of specified social groups, such as the state, but is flexible and open to wider groups of social networks and institutions (Simeonova & van der Valk, 2009, p. 245). Lafferty (2012b) meanwhile places the challenges facing EPI firmly within the context of a 'dysfunctional democracy' with respect to sustainable development. Integration in such a context is not a one off event, but is a reflexive,

adaptive, recursive process. The creation of a 'new' paradigm, programme, policy, plan, process or practice does not 'fix' the problem but is part of a complex set of interactions, feedbacks, contingencies, uncertainties and ambiguities that require acknowledgement and attention. The substantive context in which the word integration is used matters (Derkzen, Bock, & Wiskerke, 2009, p. 144); it is also normatively loaded with connotations of 'rationality and impartiality', which are highly contested.

Pohl (2014) suggests that a set of heuristic questions can begin to focus our attention on the issue of integration.

1. What is integration aiming to achieve and who is intended to benefit?
2. What is being integrated?
3. Who is doing the integration?
4. How is the integration being undertaken?
5. What is the context for integration?
6. What is the outcome of the integration?

Pohl goes on to point out that the means of integration can be diverse, including the development of mutual understanding, theoretical concepts, models, common metrics, visions or products (*ibid*).

In an important intervention into clarifying the meaning of 'integration' Scrase and Sheate (2002, p. 288) list at least 14 different connotations of 'integration'. These include: integrated information resources; integration of environmental policy concerns into governance; vertically integrated planning and management; integration across environmental media (land, air, water), integrated (regional) environmental management; integrated environmental management (production); integration of business concerns into governance; the environment, economy and society; integration across policy domains; integrated environmental economic modelling; integration of stakeholders into governance, integration among assessment tools; integration of equity concerns into governance; integration of assessment into governance. Scrase and Sheate (2002, p. 275) acknowledge that the focus on 'adjusting existing policies to the design, selection and implementation of new policies and ultimately to changing the central goals and sets of values informing problem definitions and policy direction' can potentially contribute to a paradigm shift. Before we turn to consider environmental policy integration in more depth it is worth reflecting on the acknowledgement that despite the diversity of meanings in evidence, there are some common threads. The first is that all highlight the need to address poor *communication and cooperation* between diverse actors and sectors (*ibid*., p. 287). The second is the idea of interconnection manifested in the use of *systems* based approaches in engineering, ecology and economics. This commonality is tempered by the gap between stated intentions and actions. The belief that 'better informed and more open decision-making processes will lead to

more rational and better decisions, and the stated intention to make changes that will promote transitions towards sustainable development' does not readily or necessary translate into action. The diversity of meanings reflects disagreements over about what is undesirable or unsustainable and contains potential and real conflicts. As Jordan and Lenschow (2008b, p. 332) conclude there is perhaps some irony in the lack of coordination of various policy instruments that are supposed to achieve policy coordination.

Turnpenny *et al.* (2008, pp. 762–3) provide a synthesis of the key dimensions of integration together with questions that need to be considered which we can adapt for our purposes here. The first dimension is *paradigm* relating to the overarching principles *e.g.,* sustainable development or economic growth that guides the framing of problems and solutions. The second dimension is *scope* concerning the range of impacts under consideration *e.g.*, environmental, social, economic, *etc*. The third dimension is *goals* concerning integration early in decision-making processes. The fourth dimension *process* highlights the stage and processes of integration in the policy cycle. The fifth dimension *stakeholders*, denotes the capacity to engage with multiple stakeholders to address, conflicts, identify inconsistencies and integration a diversity of perspectives. The sixth dimension *trade-offs*, refers to a systematic and deliberate capacity to identify trade-offs between goals, objectives, *etc*. The seventh dimension is *learning*: do systems have the capacity for learning in the short and long term? The final dimension is *evidence*: what constitutes evidence and what is the capacity to integrate different types of evidence into decision-making. The concept of integration is not monolithic: one dimension may be more developed than in others, and integration in practice in one dimension does not necessarily lead to integration in others (Turnpenny et al., 2008, p. 770).

While we might classify the approaches of Scrase and Sheate and Turnpenny *et al*. respectively, as more empirical/descriptive and analytic, Steurer (2009, p. 5) provides a more normative model connected to governance for sustainable development. Steurer lists five normative governance principles: horizontal policy integration; vertical policy integration; stakeholder integration (participation); knowledge integration (reflexivity); temporal integration (inter-generational equity).

2.1 Sustainable Development and Integration

Bornemann (2008) seeks to locate the impetus for the integration imperative within the concept of sustainable development itself. He characterises sustainable development as a process of discursive integration bringing together previously separated discourses of environment and development in a process of political negotiation and compromise through the World Commission on Environment and Development. Drawing on the work of Hajer, he points out that sustainable development 'functions as an integrative discourse that transcends and reframes established differences and conflicts in addition to creating new discourse coalitions' (*ibid*., p. 7).

Among the many injunctions for integration in the discourse of sustainable development the WCED (1987, p. 310) pointed out that 'the real world of interlocked economic and ecological systems will not change; the policies and institutions concerned must'. Therefore, sustainable development is not simply concerned with 'what to do', but also with governance issues of 'how to do it' (Steurer, 2009, p. 1).

Looking beyond the normative and political dimensions of sustainable development it is often forgotten that the Brundtland definition was not simply the expression of a desirable state of the world but a programmed linking of problem analysis and problem solving. In this respect Bornemann's impulse is shared by Jordan and Lenshow (2008b) who focus on 'integrating the environment for sustainability' and indeed an early formulation by Lafferty (2002). Lafferty (2002, p. 9) points out that 'one of the disadvantages of the term EPI is that it may be taken to signify an environmental policy objective that is much more limited than the broader agenda for sustainable development', however EPI is used as an operational shorthand for the environmental or ecological core of the sustainable development agenda'. The idea of sustainable development is (1) made necessary by recursive problems of modernity, (2) embodies a reflective critique of environmentally destructive and socially inequitable character of the current development pathway, and (3) requires an institutionalisation of reflexive practices in order to orient change towards a more sustainable social trajectory (Meadowcroft & Steurer, 2013, p. 7). At EU level and in many member states Environmental Policy Integration is regarded as a key element of the transition to sustainability (Jordan & Lenschow, 2008b). EPI is not a concept that simply has to be translated into the transitions debate; rather it is integral to any discussion of sustainability transitions.

Turnpenny *et al.* (2008, p. 761) summarise integration as spanning topics: 'as varied as the integration of policy (social, economic, environmental), enhancing institutions for management and crossing sectoral barriers, vertical integration between tiers of government, integrating many stakeholder perspectives and conflicting interests, managing knowledge and handling complexity and the diversity of science (interdisciplinary), institutional change, and setting out clear overarching and political goals'. The integration imperative poses the challenge of developing integrative capacity transcending the spaces of academic information and knowledge production and political spaces of decision (Dovers, 2005, pp. 3–4). Turning to the specific question of Environmental Policy Integration, it is useful to begin by briefly considering 'environmental integration', 'policy integration' and 'sectoral integration'.

2.2 Disaggregating EPI: Environment, Policy and Sector

2.2.1 Disaggregating Environmental Integration

Bührs (2009, p. 1) defines environmental integration as the 'integration of environmental considerations into all areas of human thinking, behaviour and practices that (potentially) affect

the environment. He goes on to add a related challenge is to bring coherence and consistency between these efforts (*ibid*., p. 9). Environmental integration implies adapting knowledge bases (cognitive frameworks), actions (policies) and human systems (institutions) on the bases of collectively decided environmental parameters (imperatives), so that they become 'environmentally rational'. In practice, environmental integration is about *enhancing* the incorporation of environmental knowledge, values, and interests in human thinking decisions and actions, as well as *promoting* the consistency between environmental management efforts by a variety of ways and means (*ibid*., p. 11). In his view sustainable development emerges as an overarching cognitive framework for integration, but not the only contender *e.g.,* environmental policy, ecological communalism, ecological modernisation (*cf*. Lafferty, 2002).[2]

Persson (2007) makes a distinction that appears to have gained broad acceptance across much of the literature. She argues that EPI is a 'first order operational principal to implement and institutionalise sustainable development' and that sustainable development is an overarching goal rather than a coherent policy objective to be integrated. Arguably: 'with the turn towards sustainability, environmental policy was to be 'brought out of itself' (Meadowcoft, Langhelle, & Ruud, 2012). Rather than constituting a specialised ghetto it was to become a critical dimension of mainstream economic and political decision-making (*ibid*.). As Adelle and Russel (2013, p. 4) have pointed out 'linking EPI to the rhetorically powerful paradigm of sustainable development contributed to its political acceptance, but has done less to facilitate adoption on the operational level'. Yet over the last three decades EPI has been linked with several different paradigms *e.g.,* environmental policy, sustainable development and low carbon society and economy (Jordan & Lenschow, 2008b; Skea, Hourcade, & Lechtenböhmer, 2013).

This leads us into the question, which continues to structure much of the literature: between 'principled priority' and 'positive approaches to EPI' (Persson, 2004, 2007). In other words, whether, the integration of environmental considerations provides a normative orientation to the process of policy for sustainable development giving EPI priority over other societal objectives following Lafferty and Hovden (2003) or a more positive question of how it is actually conceptualised in discourse and implemented in everyday political and policy settings (Jordan & Lenschow, 2008b). Lafferty's version of EPI is rooted in an understanding of ecological rationality influenced to some extent by Dryzek's seminal book Rational Ecology (1987). Brown (2013, p. 113) in her account of recent transitions in environmental governance in the EU states that 'ecologically rational governance ideally will be substantive with regard to its environmental goals, functional with regard to the characteristics of the system and procedural with regard to its deliberative and decision-making processes. Oberthür (2009) makes a distinction between

[2] In its simplest expression ecological modernisation refers to environment-economy integration. For a distinction between sustainable development and ecological modernisation see Langhelle (2000), for a clarification of the varieties of ecological modernisation see Christoff (1996) and Baker (2007) for an empirical application to EU policies.

'strong' and 'weak' EPI. The stronger variant implies that environmental considerations in decision-making are reflected in the substantive output of political decisions, the weaker variant is 'a procedural input standard that requires that environmental concerns and objectives are considered and weighed against other policy objectives in political decision making', but does not require the decisions themselves to reflect and respect environmental objectives. Oberthür (2009) acknowledges that even in Lafferty and Hovdens' formulation other policy objectives, at times will be more important and that principled priority would have to be determined through 'the appropriate (democratic) decision-making procedures in order to establish legitimacy'. This is important, because a strong version of EPI does not necessarily imply an absolute priority for the environment. Integration of environmental, social and economic considerations is not always feasible or desirable in some instances additive or weaker integration may be more appropriate, since we are rarely looking at binary choices, but questions of degrees of integration (Dovers, 2005, p. 2). Nilsson and Persson (2003, p. 335) argue that 'the two understandings may not be incompatible in reality, since the actual priority given to different objectives can be difficult to measure and they are both amenable to analysing EPI as a matter of degree'. In effect we are looking at false dichotomy and might be better by served by conceiving of different approaches to EPI as points on a continuum.

Jordan and Lenschow (2008b) usefully distinguish between the concept, process, and outcome of EPI. When discussing the *conceptual* underpinning it transcends both the international contexts of EU Commitments, UN declarations and OECD benchmarks of 'good practice' and attempts to clarify the substantive meaning or the concept in action by academic researchers and independent agencies (EEA, 2005a, 2005b). As Jordan (Jordan, 2008) points out the concept of sustainable development emerged at the global level and diffused widely to bridge the tensions between environmental, economic and social policy. EPI was widely debated in both scientific and political administrative contexts and during the 1990s gained traction through the Cardiff Process in the EU and the academic debate on 'Governance for Sustainable Development (GfSD)' (Bornemann, 2008, p. 17).

Although academic interest in EPI really only took off in the 1990s there is an accumulating body of research, which has led to several analytic frameworks, empirical research and syntheses for policy communities. Persson's work on EPI (Persson, 2007, p. 26) for example confirms that from the policy-making side organisations like the OECD and EEA have shown interest in learning from and synthesising the academic literature. Reading between the lines, or in this case the acknowledgements sections of key publications, is often revealing. If we trace the relationship between different strands of the academic and policy debates we find instances of interaction and intersection. The impression that the worlds of policy and research are sharply divided is not sustainable. We would suggest that these are not merely parallel pathways, but part of a recursive process of transferring science into policy and policy into to science that continues to

cycle between peaks and troughs of attention and activity involving institutions, networks and structured forums for knowledge transfer. Meadowcroft and Steurer (2013, p. 9) note a focus in both the governance for sustainability and sustainability transitions literatures with *sites* and *spaces* where ideas can gain purchase. In other words there is a need to create spaces or interstices where the co-evolution of knowledge and policy can flourish.

Box 1: Links between academia and policy-makers in developing EPI

(1) *Standard reference works on EPI by the European Environment Agency (EEA, 2005a, 2005b) were either advised, or reviewed, by many of the key authors in the academic debate.*

(2) *Jordan and Lenschow (2008b) instance the invitation to submit evidence to a parliamentary inquiry by the UK Audit Commission in 1999 as a significant moment in the development of their approach. The focus of the Audit Commissions' interest was alignment with the Cardiff Process.*

(3) *In the case of Lafferty and his colleagues, the adaptation of an earlier insight from a cross national inquiry into strategies and initiatives in high consumption societies (Lafferty & Meadowcroft, 2000) helped to develop crucial insights into what was then termed intra-ministerial integration and sectoral integration. Where the latter entailed vertical integration, the former entailed horizontal coordination. Lafferty continued to hone his perspectives on EPI in the context of participation in the OECDs' MONIT project and one of the related outcomes was the specification of the HEPI/VEPI framework for EPI (see section on sectoral integration)[3].*

(4) *Another space in which substantial cross fertilisation and structured interaction took place was in the International Human Dimensions Programme of Global Environmental Change – the Berlin Conferences. These conferences provided a forum for exchange between several research networks working on EPI and CPI crucial to developing a large body of knowledge[4].*

(5) *EU funded projects like the EPIGOV consortium brought together many of the leading researchers on EPI and has been responsible for much of published output in the field[5].*

As Bührs (2009, p. 216) points out:

> *'improving the cognitive basis for environmental integration …is not just a precondition for more effective policy integration, but is itself dependent on supportive policies and institutions. The demand for environmental knowledge and information and the nature of that demand is shaped by the extent and forms by which policy integration is pursued …The more serious government are about integrating environmental parameters into particular policy areas (such as energy and transport), the greater the demand will be for ideas, theories, models and other forms of knowledge by which integration can be implemented'.*

The classification of EPI as a *process of governing* implicitly, and explicitly view, it as a process 'anchored in the political system' (Jordan & Lenschow, 2010, p. 150). Meadowcroft *et al.* (2012,

[3] http://www.oecd.org/sti/inno/35791830.pdf
[4] https://www.bonn.de/wirtschaft_wissenschaft_internationales/bonn_international/internationaleorganisationen/03264/index.html?lang=en
[5] http://ecologic.eu/projekte/epigov/

p. 8) argue that 'sustainable development is above all about governance: about the deliberate moves societies can take to reorient their development trajectories along more sustainable lines'. Voß *et al.* (2007) point to three additionally important considerations. Sustainable development concerns the *integration* of potentially conflicting values and risk related perspectives making sustainability goals subject to controversy and change. *Interactions* between society, technology and nature are complex, non-linear and beyond the reach of disciplinary science which imply both uncertainty and unintended consequences in the context of governance. Structural societal transitions and transformations result from the interplay of diverse factors (including, science, technology, law, lifestyles, political power, *etc*.). These factors are not under the control of single actors but are dispersed with many actors and resources involved in shaping any transformation. Consequently, steering sustainable development by necessity has to coordinate the strategies of different actors. The concept of *interplay* is also increasingly being used in terms of the relationship between autonomous international institutions (Kent, 2014; Oberthür, 2009; Underdal, 2013) and the relationship between different functional domains or sectors (Hogl & Nordbeck, 2012; Nilsson, Hillman, et al., 2012; Urwin & Jordan, 2008).

Using a cognate theoretical framework to Bührs in the context of governance, Jordan and Lenschow (2008b) identify institutions, politics and polity as key elements underpinning the dynamics of successful EPI. Institutions here denote the structural features of political systems, politics refers to the political context, and the cognitive predispositions of the social, legal and administrative traditions of a polity (*Ibid*.). From an institutional perspective EPI is a multi-sectoral, multi-level coordination challenge. From a political perspective the focus is on the degree of sectoral autonomy and responsibility (of ministries or departments) and the political composition of governments at a given point in time. They argue that some of the vacillation between periods of high and low support for EPI can be linked to shifts from centre-left to centre right governments in Europe including the waning of support for the Cardiff process at the beginning of the 2000s (Jordan & Lenschow, 2010, p. 152). From a cognitive perspective 'the frame of reference' or dominant set of ideas is important. Jordan and Lenschow link the cognitive dimension to a number of factors, including: national predilections in policy-making (consensual versus legalistic) and sectoral worldviews that underpin the cultures of functional departments (energy, agriculture, transport *etc.*). The cognitive perspective has tended to stress the importance of non-state actors and circumstances external to the policy process (*ibid.,* p.152). Environmental integration is likely to be most effective if it occurs in mutually supportive ways across the cognitive, policy and institutional dimensions. For example, cognitive integration without policy and institutional integration is likely to be limited in impact; in contrast institutional integration that gives expression to integrative ideas like sustainability will remain

symbolic without environmental policy integration (Bührs, 2009, p. 20). He employs the term environmental inclusiveness to denote the degree of integration across all three dimensions.

The dilemma that is often highlighted when it comes to policy *outcomes* is that the influence of EPI activity on the state of the environment and its impact is very difficult to determine (Jordan & Lenschow, 2008b). Jordan and Lenschow (2010) pose the problem in the following way: 'In the case of EPI, 'the main subject – the state of the environment now and in the long run is complex … the existence of so many causal factors and implementing instruments implies that causality cannot easily be determined'. Adelle and Russel (2013, p. 7) point out that measuring the environmental effectiveness of integration processes is extremely difficult. Consequently, much of the analysis is confined to *outputs* from the policy process (Runhaar et al., 2014), including whether the relevant administrative structures are in place, and more often evaluating the effectiveness of individual instruments. Persson (2007, p. 31), however, begs the question of how effective procedural EPI tools are in translating into substantive EPI in policy outputs, noting that there is a risk in assuming that procedural tools are a proxy for better environmental decisions. Nevertheless, three broad categories of instruments have been reviewed throughout much of the literature i.e. communicative, organisational and procedural instruments (Hogl & Nordbeck, 2012; Jordan & Lenschow, 2008b; Persson, 2007).

Communicative instruments (constitutional provisions, national environmental plans, national sustainable development strategies) set out visions and long-term objectives to guide more specific reforms. Organisational instruments ('green cabinets', interdepartmental work groups, task forces, liaison officers, environmental units in sectoral ministries, cross-sectoral teams) seek to alter the patterned context in which policy decisions are made i.e. the rules and frameworks. Procedural instruments seek to intervene directly to alter the direction of decision making to support EPI (Green budgeting, SEA, policy appraisal). The terminology varies somewhat across the literature, Runhaar *et al.* (2014) talk about strategies for EPI covering most of instruments listed, Meadowcroft and Steurer (2013) focus on sustainability assessment and policy assessment around the policy cycle. However, many of the approaches have an affinity with the original specification of analytic framework proposed by Lafferty and Hovden (2003). Interventions at different stages of the policy cycle from formulation to the creation of measures to implement EPI can take place at more strategic, operational stages or policy-making levels (Persson, 2007, pp. 28–9).

2.2.2 Disaggregating Policy Integration

Bornemann (2008, p. 28) suggests that policy making can be framed and understood in at least two ways. The first is as a rational problem solving activity referring to substantive, real world problems that can be analysed and solved. The second takes an interaction oriented perspective where the focus is on the social processes between actors with different problem perceptions,

normative and causal beliefs. In the case of the former complexity and uncertainty give rise to problems, in the case of the latter the challenge that arises is the ambiguity of problem perceptions and the ambivalence of values and goals with respect to sustainable development. This poses significant challenges for policy integration: complexity requires analytic integration; uncertainty gives rise to calls for knowledge integration; ambiguity requires conceptual integration; ambivalence calls for normative integration. Consequently, he sees this as a question of problem definition and problem solution, linked to challenges posed by contemporary governance. Analytically this poses the problem of how policy change arises (Wurzel, Zito, & Jordan, 2013, p. 35).

Janssens and van Tatenhove (2000, p. 155) argue that integration and fragmentation are two sides of the same coin. Bornemann (Bornemann, 2008, p. 13) focussing on fragmentation and integration in the policy system indicates that integration really becomes the focus of attention with the failure of integration and the occurrence of dis-integrative effects. The problem of fragmentation is linked to a common feature of contemporary, functionally differentiated governance organised in sectoral ministries and increasingly in decentralised agencies (Jordan & Lenschow, 2010, p. 150). Bornemann (2008) points to two common diagnoses namely (1) under-integration and externalisation (2) insufficient problem solving capacities. There is a further aspect of fragmentation noted by Hogl and Nordbeck (2012, p. 118): 'from an institutional perspective EPI encounters the problems of determining suitable organisational and procedural design for policy coordination and integration in horizontally and vertically fragmented systems of governance'. The diffusion of decision-making away from central states has prompted the questioning of design and coordination in multi-level systems of governance (*ibid*., p. 122). They identify two related process with regards to the transfer of authority 'scaling up' to higher levels *e.g.,* EU or 'scaling down' to lower territorial levels. According to Christopoloulos *et al.* (2012, p. 331), 'the incorporation of sustainable development into national and international institutions, and regulatory and other processes' led to an increasing fragmentation of its governance, as governments are not the only institutions for governing'. When sustainable development is incorporated as a policy goal it implies a need to steer social transformation at a variety of temporal, spatial and structural scales which has a multi-dimensional character as a result of uncertain and ambivalent objectives, the need for a long term-perspective and consideration of multiple levels, sectors and steering instruments (Lange et al., 2013, p. 406).

The mainstream interpretation of policy integration is rooted in notions of a comprehensive rational policy making process seeking to dissolve contradictions, reduce redundancies and exploit the synergies between policies (Bornemann, 2008, p. 14). This type of approach is rooted is a conventional understanding of policy analysis that viewed the political context as having three main elements: polity, knowledge and intervention (Hajer 2003). In the case of the polity, it is associated with the *nation state*, and its stability derived from the interrelation between a

'triangle of governance'; the alignment of political-administrative institutions, societal processes and cultural adherences in a territorially defined social order (Hajer, 2003, p. 182)[6]. The challenge in light of processes like globalisation or 'Europeanisation' is that this conceptualisation of governance is no longer adequate and policy deliberation becomes a prime site of integration and trust (Hajer, 2003, p. 184).

Lange *et al.* (2013) approach the question of governing towards sustainability by considering different 'modes of governance' in a multi-dimensional approach encompassing the 'triad of political processes (politics), institutional structures (polity) and policy content (policy). Their purpose is to move beyond abstract, ideal-type modes of governance like hierarchy, market and network to provide a framework with implications for theoretical and empirical research[7]. They adopt a working definition of governance as 'a process of –more or less institutionalised- interaction between public and/ or private entities ultimately aiming at the realisation of collective goals', in this case sustainability (*ibid*., p. 406). Specifying the framework, Lange *et al.* (2013, p. 409) characterise the politics dimension as 'the process side of governance' particularly the actors and interaction processes inherent in a mode of governance. It particularly focuses on the relationship between state and non-state actors emphasising power relationships, resource dependencies and patterns of interest intermediation (statist, pluralist, corporatist, network governance) (*ibid*. p, 410). 'The polity dimension denotes the structural side of governance understood as the institutional rules of the game that shape the interaction of actors', including formal and informal rules. This dimension includes the institutions, norms and procedural settings of politics and policy and the interaction patterns of actors at multiple levels (*ibid.*). The policy dimension concerns the content of governance; policy formulation and implementation, objectives and instruments of political steering towards outputs. For our purposes, the latter is particularly (but not singularly) important as it includes environmental policy integration as well as knowledge and learning (*ibid*., p. 411) and the tools employed for steering[8].

We find the adaption by Pisano *et al.* (2014) of the triad of politics, polity and policy to the transitions debate particularly useful here. Pisano *et al.* (2014, p. 14), focus on the interplay between the dimensions of action where governance for sustainability could be activated considering different points of intervention. The inter-linkage between *politics and polity* helps

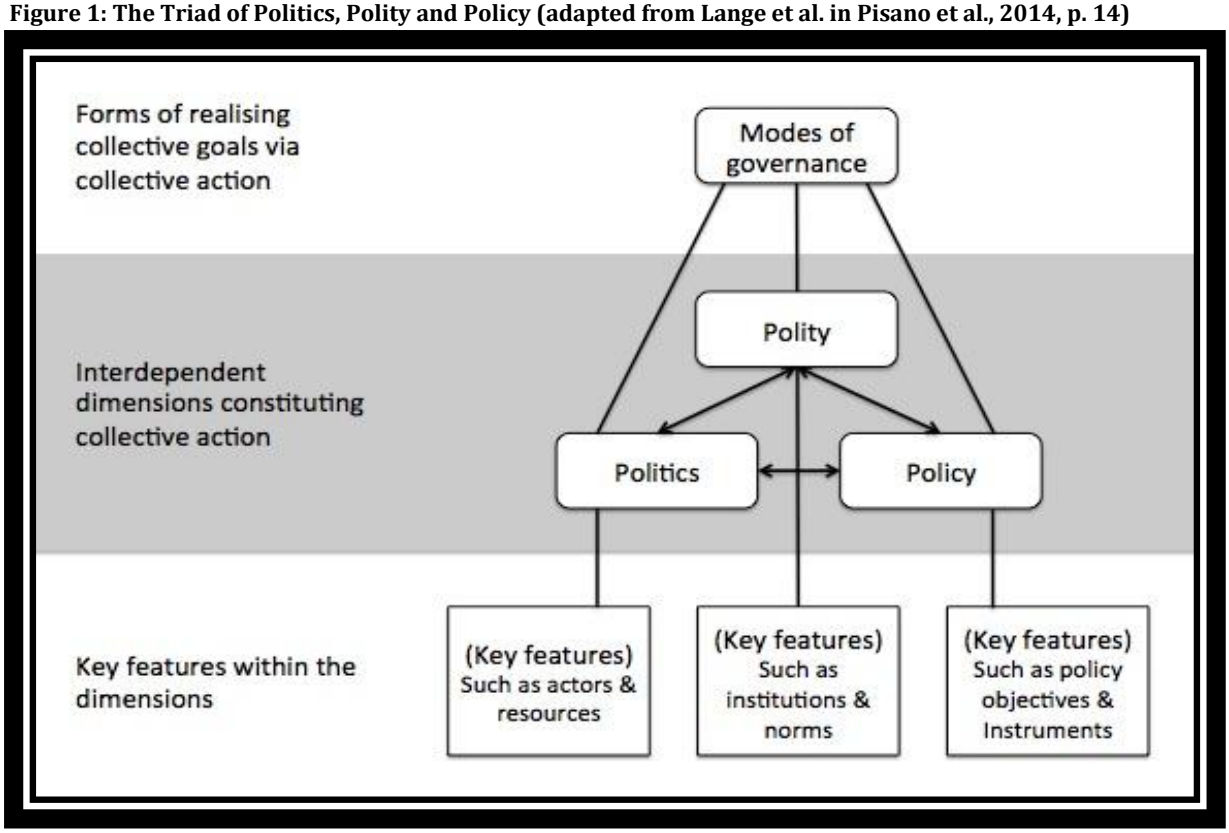
[6] Hajer calls this 'territorial synchrony'

[7] While Lange *et al.* (2013, p. 420) reference other modes of governance frameworks (*e.g.*, hierarchy, co-governance, self-governance; centralised, decentralised, public-private, interactive, self-governance) their purpose is to create a meta-framework for scrutinising the relationship between governance modes and sustainability. Other authors have distinguished between regulatory, market, cognitive and normative modes of governance (Nilsson & Persson, 2012, pp. 66–7). Steurer (2013) gives an excellent overview of the contemporary reconfiguration of regulation.

[8] While another triad, 'institutions, politics, polity', or some variation thereof (including: cognitive, normative or organisational dimensions), tends to structure most of the EPI literature we suggest it not incommensurate with framework created by Lange et al. Their governance framework is comprehensive enough and sufficiently robust to encompass these elements particularly at the level of inter-linkages between dimensions highlighted by Pisano et al. (2014).

define the political field and is a two way relationship: politics is embedded in a polity (allowing for Hajer's point), changes within the political arena can alter the 'rules of the game'. The inter-linkage between *polity and policy* helps determine the institutional setting of policy formulation and implementation, variation or innovation in the policy process can lead to change in the institutional setting and vice versa. The inter-linkage between *politics and policy* denotes the potential of state and non-state actors in specific governance arrangements to actively participate in policy making (*ibid*.).

Figure 1: The Triad of Politics, Polity and Policy (adapted from Lange et al. in Pisano et al., 2014, p. 14)

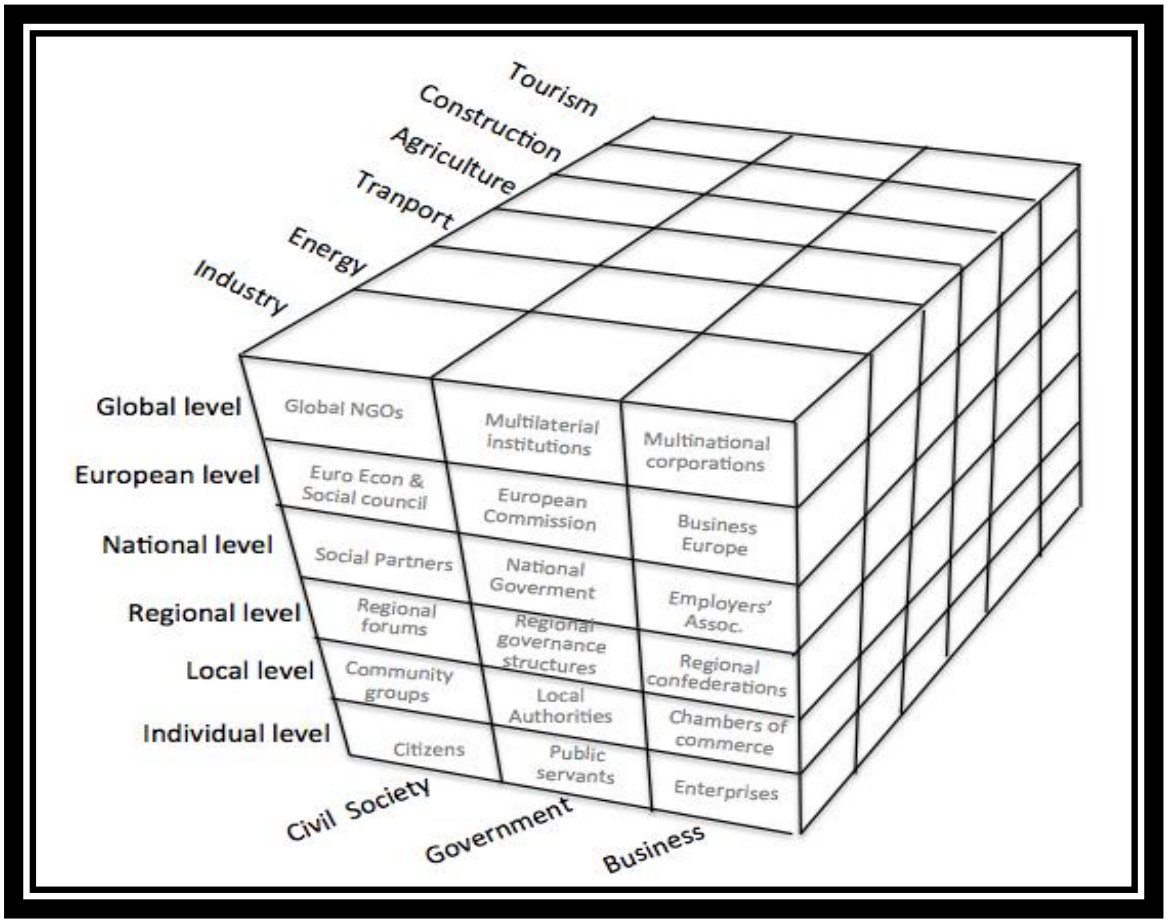


Understanding the interplay between different dimensions of action is all the more challenging in light of refinements made in environmental governance to reflect the increasing complexity of social structures in which it is embedded (Dreissen, Dieperink, van Laerhoven, Runhaar, & Vermeulan, 2012). Acknowledging that governance extends beyond government to encompass the interaction between actors in the state, market and civil society sectors they state that environmental governance also carries additional modifiers:

> *'the term multi-level governance refers to the mutual dependency between the various tiers of governance. It also alludes to the need for coordination and to the various levels of aggregation at which non-governmental bodies involved in governance operate. Another modifier of 'governance' is 'multi-actor'. Different public and private actors may have a stake in the issue – i.e. they are affected by the allocation of costs and benefits associated with either problems or their solutions. The success of resolving that issue may depend on their cooperation. The extent of multi-actor, multi-level governance depends determines variation in the perception of problems and their solutions'* (Dreissen *et al.*, 2012, pp. 144–5).

Governance has a multi-sector, multi-level, multi-actor character with implications for understanding policy *beyond* the container notion of the nation state. As Steurer (2009: 7) points out in Europe the coordination of policies at different tiers of governance and the concept of multi-level governance are not only due to the rise of sustainable development, 'but also (and perhaps primarily) to the European unification process'. In the context of the EU 'Member State functions and Community functions are interwoven and institutions depend on one another to form a functioning whole. The EU also promotes the use of policy networks in the formulation and implementation of its policies' (Susan Baker & Eckerberg, 2014, p. 185). Castells (2009, p. 40) formulation of the *'emerging network state'* is useful here where the 'actual process of decision-making operates in a network of interaction between national, supra-national, international, co-national, regional and local institutions, while also reaching out to the institutions of civil society'. This is visually represented below using the contemporary model of environmental governance (originally labelled the Rio model of Governance) outlined by Jänicke (2006). Mickwitz *et al*. (2012, p. 25) argue that the 'European multi-level system needs additional policy integration because of complex decision-making structures…horizontal and vertical aspects of policy integration are strongly interconnected and multi-player processes are entangled with mutli-level problems in complex, mutli-level games, representing new forms of relationship of the state'.

Figure 2: The Contemporary Model of Environmental Governance (adapted from Jänicke, 2006)



Nevertheless, as Jordan (Jordan, 2008) cautions alternative modes of governance often work within rather than in isolation from regulation and that government is still alive and well in governance for sustainable development. Atkinson and Klausen (Atkinson & Klausen, 2011, p. 249) conclude that 'rumours of the death of hierarchy are premature', as hierarchy continues to be dominant mode of governance with other modes largely in its shadow. They add that hierarchies are 'more flexible than is often assumed and that they do change and adapt over time in relation to different policy fields/ areas and levels of governing. This point is reinforced by Dreissen *et al*. (2012, p. 157) who note that: 'governance still draws upon hierarchical structures with central representation based decision-making next to new modes of governance …At the beginning of the 21st century the environmental governance landscape might best be classified as multi-faceted, with simultaneously co-existing forms of governance'.

Connections between Policy Integration *and* EPI

An important point of departure for Lafferty and Hovden in the academic debate on EPI is an early intervention by Underdal (1980) setting out criteria for policy integration in the context of marine policy. Persson (2007) points out that Underdal's criteria of *comprehensiveness, aggregation and consistency* assume a rationalist understanding of the policy process wherein a policy can be seen as integrated when the consequences for that policy are recognised as decision premises, aggregated into an overall evaluation and incorporated at all policy levels and into all government levels and all government agencies involved in its execution (Underdal, 1980). Underdal sets three requirements to qualify as integration: inclusiveness with regard time, space, actors and issues at the input stage (comprehensiveness); the application of overarching criteria to evaluate effectiveness at the processing stage (aggregation); and the components of comprehensive policy being in accord with one another (consistency). Lafferty (Lafferty, 2004) defines EPI as

- *The incorporation of environmental objectives into all stages of policy-making in non-environmental policy sectors, with a specific recognition of its role as a guiding principle for the planning and execution of policy;*
- *Accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimise contradictions between environmental and sectoral policies by giving principled priority to the former over the latter.*

As previously mentioned principled priority can be over-interpreted, Knudsen (2009, p. 5) points out that priority does not necessarily imply that non-environmental policy concerns must invariably give way to environmental concerns. The 'trump' status of EPI depends on the policy under consideration. He goes on to qualify this as follows:

1. Different categories of environmental concerns can be affected by different policy decisions *e.g.* climate change and biodiversity might create critical environmental parameters for renewable energy policy.
2. The outcome of a trade-off between different or competing environmental concerns depends on the overall balance of the normative process applied, specifically how social and economic concerns are taken into consideration.
3. It will also depend on whether decision-makers take a medium or long term perspective and whether they perceive relevant changes within a local, national or global context (*ibid*.).

Despite this qualification, Knudsen acknowledges that it does not resolve the question of *how* the principle can best be applied by government in practice. He therefore argues that it is 'analytically fruitful' to focus on two interactive dimensions of EPI: *Horizontal Environmental Policy Integration [HEPI]* (or the 'cross-sectoral horizontal dimension') and *Vertical Environmental Policy Integration [VEPI]* (the implementation of EPI within different sectors) (*ibid*., p. 6). While there are definitely crossovers with the multi-level governance approach, Steurer (2009, p. 7) notes that the proximity of the two dimensions of integration can lead to confusion and that a number of analysts see the vertical dimension as the degree to which sectors have 'greened' or merged environmental objectives with sectoral objectives as a decision-making premise. Lafferty and Hovden (2003, p. 13) are very clear that by vertical they are invoking the 'functional' sense of specific policy sectors (*e.g.,* transport, energy, agriculture, *etc.)*, and not in the sense of the 'vertical constitutional division of powers'. For this reason, and because we think that it provides additional points of connection with the sustainability transitions debate, we choose to elaborate on this further in the discussion on sectoral integration. Following Stead and Meijers (2009, p. 324), we must acknowledge that EPI sets an extremely demanding standard for governance requiring: more interaction, accessibility, compatibility, and interdependence; more formal institutional arrangements requiring more resources, the negotiability of autonomy by stakeholders; and comprehensiveness in terms of time, spaces and actors. All of these considerations make EPI very challenging for the standard operational procedures of government and administration.

EPI may be an aspiration for policy makers, politicians and academics (Stead & Meijers, 2009, p. 324), but there are limits to its achievement in practice. They list five categories of facilitators and inhibitors that can be found. These include: (1) political factors; (2) institutional/ organisational factors; (3) economic/ financial factors; (4) process management and instrumental factors; (5) behavioural, cultural and personal factors. They go on to stress that none of these factors alone is sufficient to either full promote or thwart integration, but can have a powerful influence on policy making when either acting in parallel or in combination. Stead and Meijers (2009, pp. 329–330) also provide a very useful synthesis on the challenges facing integration:

> *'While the need for coordination and integration across sectors is growing, the capacity to respond is arguably shrinking, due to the rigidity of administrative and political borders, the stability of departmentalism and the strength of sectoral interests and preferences for small-scale solutions. Current trends in the fragmentation of governance represent a key challenge for policy integration. The hollowing out and contractualisation of government …The unequal balance of power between the sectors and the differences in time-scales of policies and programmes across sectors all present substantial challenges, as do inconsistent goals across policy sectors and poor contact between the sectors'.*

Empirical analyses (*e.g.*, Turnpenny *et al.*, 2008, p. 772) question the relationship between rational policy and the 'messy world of policy-making' highlighting the fact that 'policy-making tends to be an accretive, incremental and *ad hoc* process'. Nevertheless, Bornemann (2008, p. 16) makes an important observation here – a fragmented policy system is not only insufficient with regard to the solution of complex sustainable development problems, it is also responsible for their emergence. Underdal (2010) later expands this understanding to include a broader societal context of the policy process that includes both narrower and broader interpretations of policy. In this context, drawing on the wider environmental governance literature, Runhaar *et al.* (2014) note that the emphasis in studies of EPI is often on top-down approaches with a focus on central government actors, but that other modes of governance *e.g.,* voluntary sectoral approaches and agreements, partnerships, *etc*. could also contribute to EPI.

While acknowledging that too much fragmentation is certainly problematic, Meadowcroft (2002, p. 178) argues that fragmentation *per se* may not be entirely negative. Using the ideas of *institutional pluralism* and the *pluralism of participating groups*, he points out that a 'mosaic of institutions with different and partially overlapping loci' corresponds with the actual 'untidy and disjointed' character of social –ecological interactions. Rather as he points out: 'redundancy, more or less continuous collision and considerable fragmentation' could be seen as virtues reducing the risk that major issues will go unnoticed. In terms of the advantages of the pluralism of participating groups, the bringing together of the knowledge resources of dispersed groups could enhance policy formulation, or extend the reach and legitimacy of governance structures in the implementation of policy[9]. He acknowledges that group processes require careful management to avoid polarisation or paralysis (*ibid*.).

EPI as a Learning Process

Many of the approaches explored either adopt or acknowledge the importance of a *policy learning* approach (Nilsson & Persson, 2003; Persson, 2007; Scrase & Sheate, 2002; Wurzel *et al.*, 2013). In many cases they adapt Hall's policy change framework (2003 cited in Wurzel *et al.*, 2013) as a bridge between the study of overarching developments in the policy process and

[9] A similar point is made in relation to deliberative democracy by Hendriks and Grin (2007) who stress the importance of loose coupling

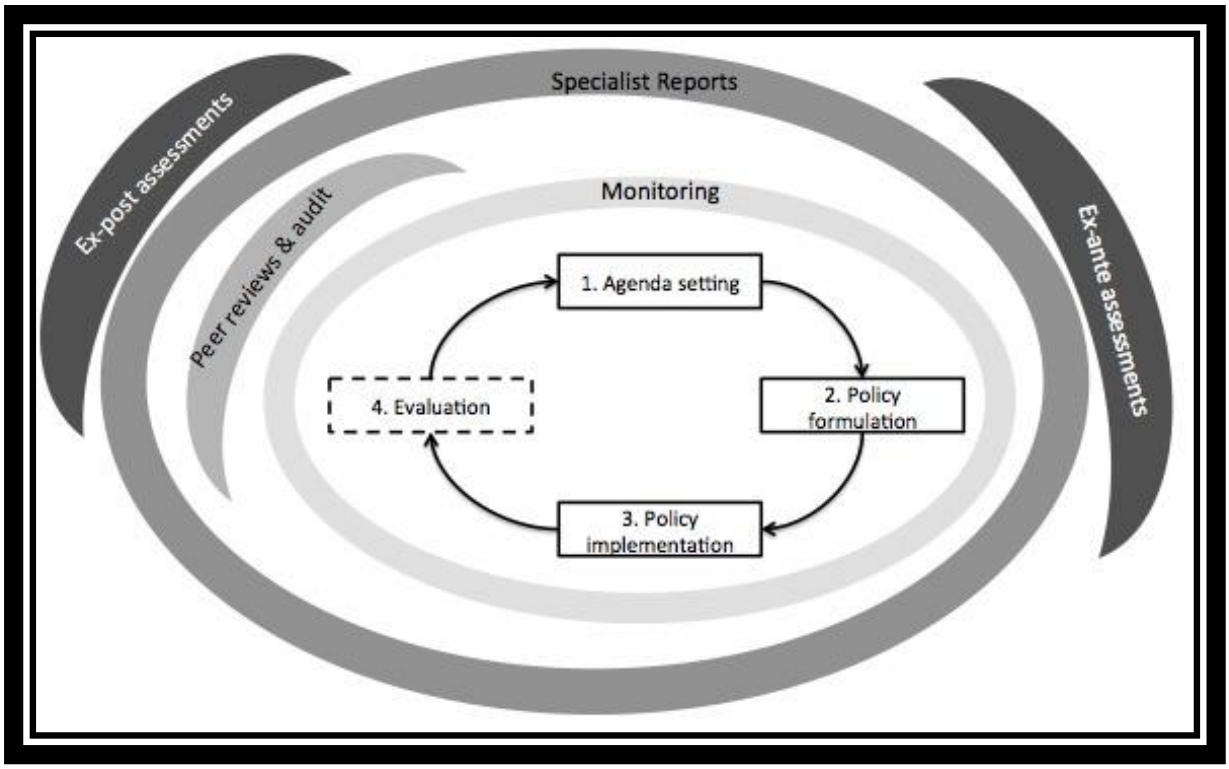
policy instruments. Wurzel *et al.* (2013, p. 37) highlight the 'deliberate attempt to adjust the goals and techniques of policy in response to past experiences and new information'. Based on this they see three elements of change: changes in the policy goals guiding a particular field; the techniques or instruments used for goal attainment, and the settings of those instruments. Subsequently, they identify three levels of change. The first level of change involves recalibrating existing instruments; the second level of change involves the adoption of new instruments; the third level of change is of a very different order involving a change in goals or 'paradigm change'. In other formulations, distinctions are made between incremental changes in routine policy making; development of new policy concerns and goals; and, paradigmatic shifts in core values and perceptions (Storbjörk & Isaksson, 2014).

EPI is about much more that rational decision-making, consisting of context specific interpretations that involve larger number of actors (including diverse sector rationales and objectives) continually *reframing* problem definitions and understanding (Hogl & Nordbeck, 2012, p. 221). Swartling *et al.* (2007, p. 53) stress that learning does not just occur through the use of 'environmental policy instruments due to demands which have their origins outside of the sector', but are a 'special case of conceptual learning towards sustainable development'. Drawing on Rein and Schön (1993), *policy frames* are 'ways of selecting, organising, interpreting and making sense of a complex reality to provide guideposts for knowing, analysis and acting' (*ibid*.). Swartling *et al.* point out that policy frames contain 'objectives, causal assumptions about problems, and prescriptions about suitable responses'. They acknowledge that policy frames and reframing do not simply come about through conceptual learning process, but also through 'politics and strategic behaviour'. Hogl and Norbeck instance the country study in Sweden by Nilsson *et al.* (2007) as a good example of how reframing has impacted on EPI in the agricultural and energy sectors over a longer term perspective. This perspective is adopted in the report in the sections on agriculture and energy in the EU.

Assessment and Policy Cycles

Although, acknowledging that the use of certain appraisal/ assessment instruments throughout the policy cycle falls well short of paradigm change Meadowcroft and Steurer provide a useful reflection. They employ a heuristic device (represented in the diagram in the internal circle) disaggregating policy processes into four stages: agenda setting, policy formulation, implementation and evaluation (*ibid*., p. 13).

Figure 3: Systematic Assessments around the Policy Cycle (Meadowcroft & Steurer, 2013, p. 14).



They are particularly interested in assessment practices, the formal mechanisms by which the state receives feedback on societal/ environmental interactions and policy orientations which is very much in line with the types of procedural instruments outlined by Jordan and Lenschow (2008b). Meadowcroft and Steurer (2013, p. 3) list several approaches (see Box 2).

Box 2: Policy Assessment Practices

(1) *Monitoring: environmental pressures and states and economic and social trends or policy impacts or outcomes, indicators or State of the Environment Reports.*

(2) *Policy evaluations: evidence-based examination of all kinds of policies can be ex ante or ex post using a range of methods (scenario techniques and models, CBA, impact assessment, risk perspectives), using criteria such as effectiveness, efficiency, equity/ fairness, flexibility, predictability, adaptability.*

(3) *Formal Audits: an extension of established practices for audits of performance in organisations or policy domains against objective set by governments*

(4) *Peer reviews of policy areas, instruments or parameters of environmental policy (eg. OECD, EU SDS)*

(5) *Specialist reports – not ex ante or ex post evaluations of policies (Stern, IPCC) but broad analyses of policy relevant issues*

They point out that the formal or state centred mechanisms that they are concerned with are always going to be problematic from a broader governance perspective as they embrace a

narrow instrumentality (Meadowcroft & Steurer, 2013, p. 7). As such they are unlikely to trigger the kind of 'paradigm shift' identified above. Returning to each of these in turn they offer an assessment of the strengths and weakness of these approaches.

Monitoring has been pursued through indicators but the linkage between strategy objectives and indicators are rarely made explicit and usually weak, and fail to gain public attention in the same way that economic indicators do (*ibid., p.* 10). In the case of policy *evaluations* – they find that there is a difficulty even in the language used variously as 'integrated impact assessment', 'sustainability (impact) assessment', 'sustainability (impact) appraisal', strategic impact assessment' but all appear to share an emphasis on bringing together environmental social and environmental considerations and balancing these different substantive concerns in a single appraisal exercise' (*ibid*.). In their opinion, many of these approaches fall short because they confine their focus on short terms economic costs and benefits and become little more than conventional Regulatory Impact Analysis. In the case of *Peer reviews* – A key strength is that they rely on 'peers' who know the inner workings of public administration and take practical considerations into account in their recommendations. The corollary is that recommendations are usually less critical or demanding than reviews by other categories of evaluators (*ibid.*, p. 11). *Formal audits* play close attention to detail, are grounded in the reality of policy, connected to decision-makers and have high legitimacy, but have no power to change the fundamental orientation or assumptions on which policy rest (*ibid*., p. 12). Specialist *reports* –conducted by NSDCs, in theory because of the broadly constituted societal bases were free to address hot topics, in practice very few established themselves as critical interlocutors or achieved public visibility (Meadowcroft & Steurer, 2013, p. 12).

Comparative Assessments of Sustainable Development Strategies

Casado-Asensio and Steurer (2013, p. 442) point out that sustainable development strategies emerged around the turn of the millennium, triggered by various European decisions and shaped by guidance from the EU and OECD. In the EU, national sustainable development strategies evolved over three phases. The first phase in the 1990s (1992-2000) responded to the United Nations Agenda 21 process wherein a number of EU states (Finland, Ireland, Luxembourg, Sweden, United Kingdom) prepared national sustainable development strategies. The second phase was triggered by the Gothenberg European Council (2001) in preparation for the World Summit on Sustainable Development (2002). In this phase the remaining EU-15 prepared strategies and the existing strategies were updated. There is now a substantial body of research on integrated strategies for sustainable development (Berger & Steurer, 2008; Casado-Asensio & Steurer, 2013; European Commission, 2005; Gjoski, Sedlacko, & Berger, 2010; Jänicke & Jörgens, 1998; Niestroy, 2005; Pisano et al., 2013; Steurer & Martinuzzi, 2005; Volkery, Swanson, Jacob, Bregha, & Pintér, 2006; Zwirner, Berger, & Sedlacko, 2007). In the third phase (2006-2012), the

European Council demanded the revision of national strategies in line with the renewed EU SDS[10]. While many member states complied, the impetus to review or continue implementing national strategies gradually faded in favour of climate mitigation and adaptation strategies.

Pisano *et al.* (2013, p. 6) argue that sustainable development strategies should ideally help to achieve 'better policy coordination and integration in several dimensions: horizontally (across policy sectors); vertically (across political administrative levels as well as territorially, temporally (across time) and across societal sectors (public, private, academia, civil society). Drawing on Meadowcroft, they argue that:

> *'because sustainable development implies intergenerational time frames and a complex balancing of social objectives, the longer term and more comprehensive approach to planning embodied in national strategy processes is important. Strategies provide an opportunity to take stock and fix priorities. They provide an occasion to focus debate, build consensus, examine trade-offs and make choices'* (Meadowcroft cited in Pisano et al., 2013, p. 6).

The emphasis on integration has continued to feature in key documents at EU and UN levels. Von Homeyer (2010) notes the original EU Sustainable Development Strategy (EU SDS) invited the Council to finalise and further develop sector strategies for integrating environment into all relevant Community policy areas. Although the renewed EU SDS 2006 does not explicitly mention EPI, Von Homeyer argues that it is implicit throughout much of the text. The final text of the outcome document from Rio+20 – The Future We Want – 'emphasises the need for more coherent and integrated planning and decision-making at national, subnational and local levels' and calls on countries to 'strengthen national, subnational and/or local institutions and or relevant multi-stakeholder bodies and processes, as appropriate, dealing with sustainable development, including to coordinate on matters of sustainable development and to enable effective integration of the three dimensions of sustainable development' (Pisano *et al.*, 2013, p. 9).

A number of authors have highlighted the potential for learning in sustainable development strategies. Von Homeyer argues that the governance process involved in sustainable development is associated with recursivity and learning and is therefore compatible with experimentalist approaches to governance. Sustainable development strategies are iterative processes where continuous learning is crucial (Meadowcroft cited in Pisano *et al.*, 2013, p. 7). Rather than one-off exercises, they are 'repeated cycles of analysis, decision, planning,

[10] By 2007 all EU Member States had developed national strategies in response to the renewed EU SDS of 2006 (Pisano *et al.*, 2013, p. 9). Pisano *et al.* divide the third phase into stages with most European countries starting to revise their strategies between 2006-2008 (*e.g.,* Denmark, Ireland, Malta, Norway, Portugal, Romania, Spain Switzerland, Italy, Lithuania, Bulgaria) others in the period 2009-2010 (Austria, Czech Republic, France, Latvia, Luxembourg). Revised strategies were adopted in the period 2010-2012 in Finland, France and Slovenia. Ireland published *Our Sustainable Future – a Framework for Sustainable Development for Ireland* in June 2012 as part of Ireland's input into the Rio+20 Summit in 2012.

implementation and review' where 'outcomes of original initiatives are monitored and evaluated, and policy orientations are subsequently adjusted. The policy learning cycle in the context of sustainable development strategies emphasises four aspects: (1) long term focus; (2) balancing different policy sectors; (3) participation; and (4) reflexivity (Endl & Berger, 2014, p. 41; Zwirner *et al.*, 2007, p. 8). In this respect, sustainable development strategies ought to provide a significant overarching framework for EPI. In practice sustainable development strategies remained secondary to economic growth policies. In the case of the EU SDS it became the third pillar of the Lisbon Strategy alongside growth/ competitiveness and employment/ social cohesion (Von Homeyer, 2010). Subsequently, Europe 2020, subtitled A Strategy for Smart, Sustainable and Inclusive Growth, became the overarching strategy for all European policies (Pisano *et al.,* 2013, p. 11). In contrast the EU SDS only seems to have very limited impact and steering power. The most recent evaluation of sustainable development strategies (Casado-Asensio & Steurer, 2014, p. 445) is quite sombre with respect to their impact and legacy:

1. Sustainable development strategies started out in innovative arrangements to govern sectoral interdependencies. To a certain extent, they went beyond being strategy documents by establishing innovative governance approaches.
2. The central role played by traditionally weak environmental ministries hindered cross-sectoral integration and vertical integration is an even bigger governance failure because in the cases where governments established vertical coordination mechanisms the goals were either too broad or the institutions created often lacked a clear mandate.
3. Most sustainable development strategies lack political commitment and consequently have become administered processes incapable of shaping government agendas or major political decisions.
4. Among the enduring legacies of sustainable development strategies are processes of monitoring and evaluation of progress towards sustainable development. The use of indicator sets and reports have some drawbacks: (a) the tendency to focus on socio-economic and environmental trends rather than actual implementation; (b) the reliance on often outdated data makes it difficult to revise policies in a timely manner; (c) the findings from monitoring and evaluation are used by administrators and researchers, but go largely unnoticed by politicians and the public.

2.2.3 Disaggregating Sectoral Integration

Janssens and Van Tatenhove (2000, pp. 155–6) identify three main elements relevant to the challenges of integration under consideration. The first, the *integration of policy aspects*, is synonymous with the integration of policy content and different types of policy and organisational instruments outlined in the previous discussion. The second element is the *direction of integration* wherein they distinguish between internal, external, horizontal and vertical integration. We suggest that an additional emergent category, diagonal integration,

provides a bridge to the debate on sustainability transitions. The third element refers to *stages of integration* ranging from differentiation to integration, however we prefer to use the term *degrees of integration* adopted by several authors (Runhaar *et al.*, 2014; Storbjörk & Isaksson, 2014) from the original article by Lafferty and Hovden. A point worth highlighting here is that there can often be significant semantic imprecision, conflation of criteria and categories and the interchangeability of concepts that tend to blur the lines (box 3). We also feel it prudent to focus on recent developments in the debate where *integration and coherence* are treated as interrelated but distinctive (Nilsson, Hillman, *et al.*, 2012).

Box 3: Getting to Grips with the language of EPI

(1) *There is a tendency to use integration and mainstreaming interchangeably. Adelle and Russel (2013, p. 3) argue that distinguishing between integration and mainstreaming has limited value. Associated meanings are often defined by context: integration is preferred in environmental debates; mainstreaming is used more often in development literature and in the climate adaptation and mitigation literature (see: Kok & de Coninck, 2007, p. 588).*

(2) *Policy integration and policy coordination are closely linked (Hogl & Nordbeck, 2012, p. 112), sometimes used synonymously, or in other cases viewed as stages or degrees of integration (see: Runhaar et al., 2014; Storbjörk & Isaksson, 2014).*

(3) *Integration and coordination could be synonymous if policy coordination is based on environmental parameters, goals and objectives or substantial environmental policy coordination. However, procedural mechanisms for consultation, bargaining or mutual adjustment may not necessarily assign importance to environmental dimensions. Coordination can also be based on non-environmental goals and objectives. Procedural coordination is a necessary mechanism for environmental policy integration, but not a sufficient means for bringing about such integration Bührs (2009, pp. 18–19) (see: Stead & Meijers, 2009; Storbjörk & Isaksson, 2014).*

(4) *The lack of delineation between integration and consistency, and consistency and coherence can also lead to confusion (Nilsson & Persson, 2012, p. 396). They therefore make a sharp distinction between integration and coherence.*

(5) *Mickwitz et al. (2009, p. 24) identify the conflation of coordination, consistency and coherence across the literature as problematic. They adopt a stronger criterion for coherence as the 'systematic promotion of mutually reinforcing actions across government departments and agencies creating synergies towards achieving the defined objective'.*

2.2.3.1 Internal and External Integration

Internal integration, also referred to as intra-sectoral policy integration, is focussed within particular sectors agriculture, energy, transport, *etc*. and concerns the integration of different issues within a policy domain *e.g.*, water, air and soil (Nilsson, Hillman, *et al.*, 2012, p. 396). External policy integration refers to the coordination and integration of a policy domain with other domains *e.g.*, environment and agriculture or climate and energy. In the case of inter-

sectoral policy integration we are referring to *coordination and coherence* between and across different sectoral policy domains[11].

2.2.3.2 Horizontal and Vertical Integration

Lafferty (2012a, p. 33) characterises EPI as 'a key governing instrument for achieving the de-coupling of existing policy drivers (economic and social concerns) from ecological degradation (environmental concerns)'. Following the OECD 2001, Lafferty *et al.* (2004, p. 12) argue that 'de-coupling signifies that necessary environmental protective measures should be pursued regardless of economic growth patterns and business cycles'. The de-coupling of non-sustainable patterns of social change necessarily implies a search for re-coupling for sustainable development'. The idea of recoupling 'resonates with a crucial premise of the Brundtland report which states that continued economic growth is necessary provided that the *quality* of growth changes' (Knudsen, 2009, p. 5). Lafferty *et al.* stress that protecting the environment must be promoted in such a way as to trigger modified or even new value added activities and growth patterns, either through incremental change or radical discontinuous change.

Over the course of several studies (Lafferty & Hovden, 2003; Lafferty, 2002, 2004, 2012a) the specification of benchmarks for governing mechanisms for EPI has developed through several iterations. These benchmarks involve the horizontal (HEPI) and vertical dimensions of integration (VEPI) initiatives within governments. The focus is on the responsibilities of governing institutions: ministries, agencies, inter-governmental committees and other bodies deriving their authority from national, regional or local constitutional mandates (Lafferty *et al.*, 2004, p. 16). Vertical environmental policy integration indicates the extent to which governmental sectors have taken on board and implemented environmental objectives as central in the portfolio of objectives the sector continually pursues (*ibid*.). They point out that this does not presuppose the primacy of environment goals at cabinet level and that each sector is free to develop its own understanding of the concept and its implications. Lafferty (2012a, p. 37) has specified an interdependent checklist of operational mechanisms related to the responsibility of ministries/ departments:

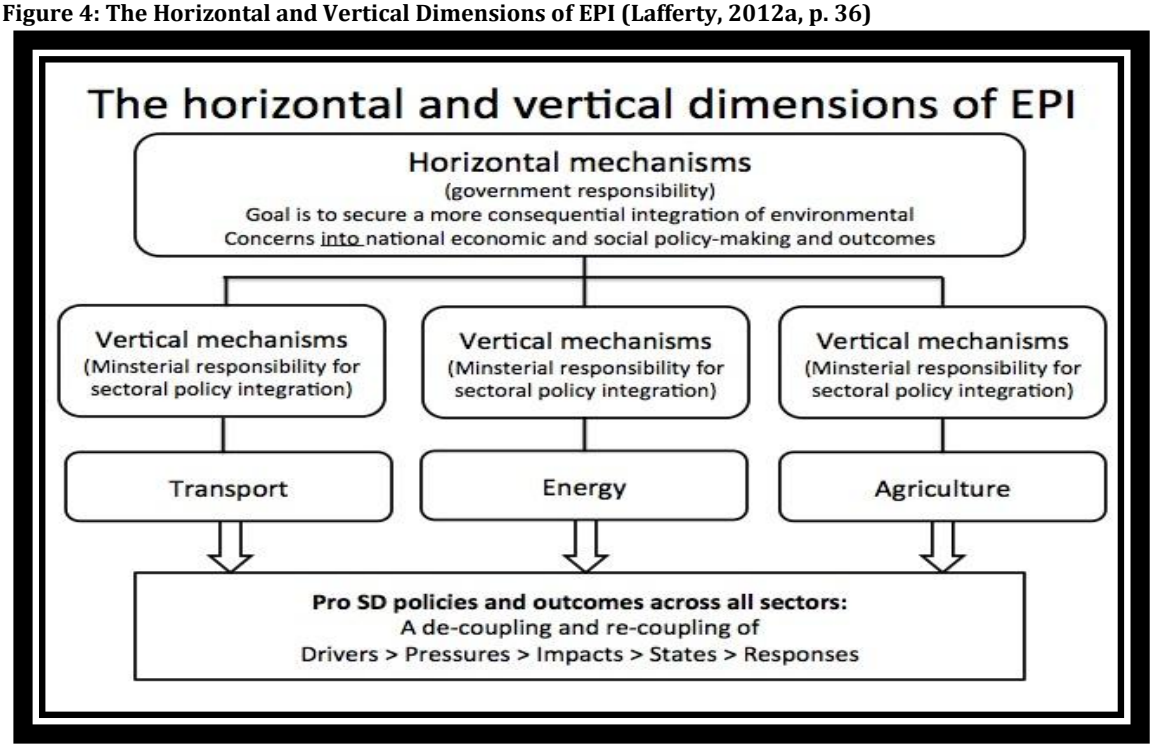
- *Scoping reports of sectoral activity identifying major environmental impacts associated with key actors and processes*
- *Sectoral forums for dialogue and consultation with relevant stakeholders and affected citizens*
- *Sectoral strategies for change, with basic principles, goals, targets and timetables*
- *Sectoral action plans with specified initiatives for achieving goals with target-group related policy instruments*
- *Green budgets for highlighting, prioritising and carrying through action plans*

[11] At the level of the EU the internal/ external distinction has another connotation *i.e.*, inside the EU and outside in relation to the rest of the world, (Adelle & Jordan, 2014, p. 338)

- *Monitoring programmes for evaluating implementation and revising strategies and action plans.*

Lafferty *et al.* (2004, p. 16) argue that these steering mechanisms identify institutions and procedures deemed necessary to achieve a minimum of processual integration of environmental concerns in sectoral governance.

Figure 4: The Horizontal and Vertical Dimensions of EPI (Lafferty, 2012a, p. 36)



Horizontal environmental policy integration involves the question of integrating environmental concerns within governments*: i.e*. across sectoral policy and responsibility. Lafferty proposes a list of benchmarks for HEPI[12]:

- *A 'constitutive' mandate providing principles and procedures for reconciling conflicts and trade-offs related to de-coupling and environmental policy integration*[13]
- *An over-arching strategy for sustainable development goals and operational principles, and a political mandate for implementation with direct backing from the chief executive authority*
- *A national action plan with both over-arching and sectoral targets, indicators and time tables*
- *A responsible executive body with designated responsibility (and powers) for the overall coordination, implementation and supervision of integration process*
- *A communications plan stipulating sectoral responsibility for achieving overarching goals, and outlining how cross-sectoral communications are to be structured and made transparent*

[12] As these have evolved through several iterations the benchmarks have developed and changed.
[13] In earlier versions this was a 'constitutional' mandate providing provisions for the special status of environment/ sustainable development rights and goals (Lafferty et al., 2004, p. 17).

- *An independent auditor with responsibility for monitoring and assessing implementation at both government and sectoral levels, and for proposing revisions in subsequent generations of strategies and action plans*
- *A board of petition and redress for resolving conflicts of interest between environmental and other sectoral objectives, interests and actors*

Lafferty *et al.* (2004, p. 18) note that 'these benchmarks should be seen as indicating 'baseline' requirements for achieving and evaluating horizontal, cross sectoral integration of environmental/ ecological goals…each set of bench marks is sequential as a rational implementation strategy and cumulative as to potential outcome'. Ultimately, the degree to which the outcome is substantial for sustainable development relates to the degree of political and administrative commitment to substantive norms.

There are, however, additional considerations as EPI is not being sketched on a blank canvas. There are stuctural, institutional, organisational, cultural and cognitive variables that condition the receptivity or inertia with regards to EPI in national and sectoral contexts. The concept and elaboration of *path dependency* have been developed at some length in Lafferty and Ruud (2008, pp. 19–22), however, we will give some minimal indications here. Reflecting on govenance, knowledge and the search for integration, Atkinson and Klausen (2011, p. 247) suggest that outcomes in terms of sustainability, 'are primarily a matter of path-dependency whereby pre-existing ' ways of working and thinking' structure processes and outcomes, rather than of 'new' knowledge or the effects of goverance modes on knowledge filtering'. In effect, they surmise that sustainability is 'largely (re-)interpreted to fit with pre-existing modes of governing/ governance'.

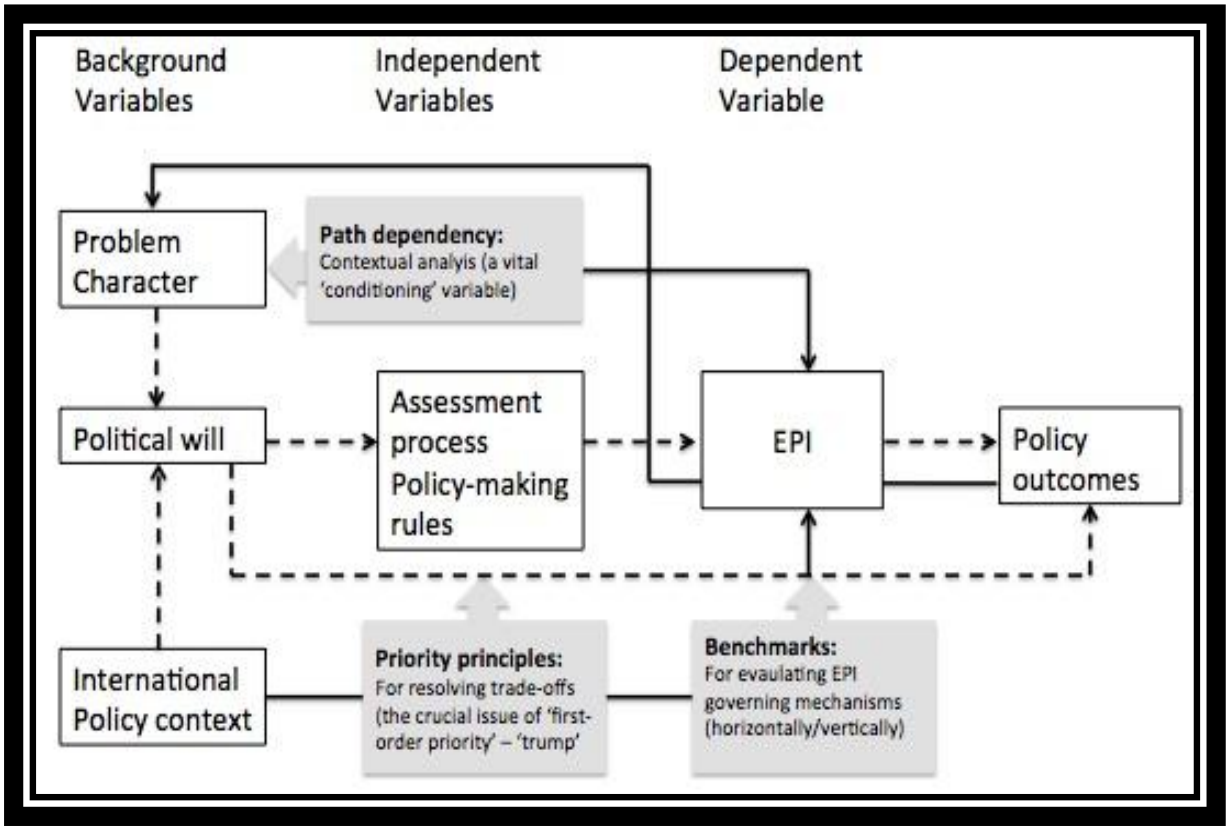
Mickwitz *et al.* (2009, p. 76) note that the problem of strong path dependence and political intertia have been well established in the literature and the related difficulties in attempting to shift the 'resource distribution of and focus of established insitutions'. One possibility that they explore is whether 'new specialised institutions' might be a potential solution. The danger is that new specialised institutions might be percieved as remote or even antagonistic to established governmental structures and sectors. It may, at least in the short term, contribute to increased fragmentation where 'segregated responsibilities maintain administrative mistfits and anatagonist relationships focused on zero sum solutions, instead of producing shared responsibility and cooperative relations required for creating win-win solutions' (*ibid*.) [14].

The empirical challenge parsing Lafferty (2012a, p. 18) is to document, through evaluative research, the inherent barriers and inertia of institutions and procedures critical to sustainable development; focus on the crucial challenge to change the qulaity of economic growth through

[14] The issue of a dedicated approach versus an intergrated or mainstream approach to climate adaptation has recently been explored at the municipal level by Uittenbroek *et al.* (2014).

innovation and social learning; highlight and disseminate good practice; and, demonstrate the clear dependence of economic and technical steering instruments on historical, cultural and social conditions. Lafferty and Ruud (2008, p. 19) seeking to capture these 'conditioning effects' and the challenge to overcome them adopt the terms 'path dependency' and 'path creation'. They are conscious that these terms both capture contextual restraints 'with a relevent general analogy – the image of existing 'paths' and and the potential for alternative future 'paths' (*ibid*.). Here we see a direct conntection with the transitions literature. Leach *et al.* (2010, p. 5) conceive of pathways as 'alternative possible trajectories for knowledge, intervention and change which prioritise different goals, values and functions', in the context of creating dynamic sustainability (*Ibid.*, p. 5). Smith and Stirling (2010) argue that the transitions approach seeks to overcome negative resilience (path dependence) in unsustainable systems to move along sustainable paths (path creation)[15]. In particular, it looks to the possibilities when incumbent socio-technical regimes become destabilised losing their resilience as a result of shocks and stresses and become susceptible to transformation, *e.g.,* energy systems (creative destruction). Lafferty (2011) has endeavoured to map the 'priority principles', benchmarks for EPI and the conditioning variable of path dependency onto a dynamic analytical model originally developed by Nilsson and Persson (2003, p. 344).

Figure 5: The Nilsson and Persson (2003) model of EPI adapted by ProSus (Lafferty, 2011, p. 10)



[15] Path-destruction and path-creation are not the only possibilities. In the Irish context Kitchin et al. (2012) note that the particular convergence of neo-liberalism and well established socio-political and political economic practices, gives rise to what they term 'path amplification' where the past can act as catalysts, lubricants and well springs for neo-liberal reforms.

Diagonal Integration: An emergent category for EPI?

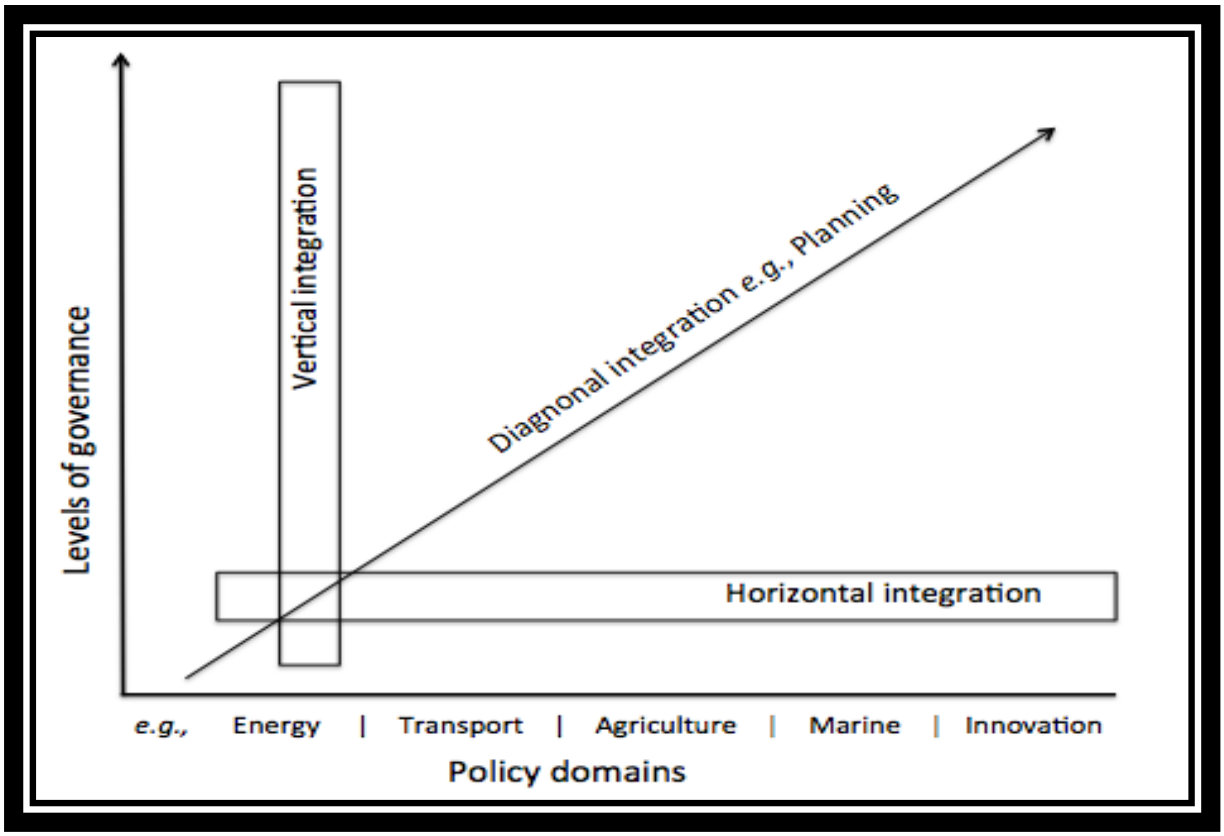
Normally this categorisation would be considered to be captured by the VEPI dimension outlined by Lafferty, or indeed redundant in light of the clearly stated intention that the implicit 'landscape' for the dimensions developed are governmental (Lafferty & Hovden, 2003, p. 12). Nevertheless, several authors developing the concept of EPI have either indicated the importance of the broader social conditioning of governance on EPI (Nilsson, Hillman, *et al.*, 2012; Runhaar *et al.*, 2014), or actively attempted to specify the relationship (Underdal, 2013).

Meadowcroft (2002, p. 171) notes that all sorts of political problems cross jurisdictions and many organisations find themselves acting in the political spaces that cut across conventional [vertical] boundaries. While not new per se, these *diagonal* political linkages have received more attention under conditions of globalisation. Berger and Steurer (2009, p. 4) meanwhile note that 'when horizontal policy integration occurs not at a single level of government but is carried further across vertical tiers of governance, one can speak of 'diagonal policy integration', their initial formula is 'horizontal policy integration + vertical policy integration = diagonal policy integration'[16].

Janssens and van Tatenhove (2000, p. 156) use the concept of diagonal coordination to refer to 'co-ordination procedures that cut across existing statutory systems, in order to ensure close cooperation between departments tiers of governance and if necessary private partners in the planning and realisation of complex and urgent strategic projects'. The project based approach has been explored in the context of spatial planning by Chapman (2011). Drawing on the conclusions of the EUROCITIES *Pegasus* Project (2002-4) on integrated area based urban planning in a number of major European cities, he notes that 'given the complexity of scales, policy areas and actors that need to be involved that strategic development encountered an administrative challenge where 'mere horizontal and vertical coordination were not sufficient to solve problems, …a diagonal line had to be drawn' (EUROCITIES 2004 cited in Chapman, 2011, p. 517). Chapman acknowledges that while project and initiative driven examples could assist in highlighting the importance of complex, incremental and disconnected actions, the real challenge is to develop 'processes that systematically assist integration between disconnected actors, actions in situations that are independent of any shared project or purpose (other than at the meta-scale)' (*ibid*., p. 518).

[16] There is a cognate concept in the discussion on the role of social capital in sustainable development. Rydin and Holman (2004, p. 122) introduce the concept of 'bracing social capital …to address the reality of cross-sectoral, cross-scale horizontal and vertical linkages' in governance for sustainable development see Mullally *et al.* (2009, p. 16).

Figure 6: The concept of Diagonal Integration (adapted from Chapman, 2011, p. 517)



More recently the concept of diagonal environmental policy integration has been applied to the study of climate policy in federal states by the CLIP-in Project (Casado-Asensio & Steurer, 2012, p. 5). The authors note that although diagonal policy integration (presumably in climate policy integration) has not been tested empirically, it can be thought of as an additional mechanism that takes account of both cross-scale interdependencies and cross sector linkages. We might add that it also remains under-developed from both theoretical and evaluative perspectives, and is beyond our scope here to give the kinds of specification and benchmarks set in train by Lafferty and his colleagues.

There are a number of convergent developments in broader literature are explored here to suggest that closer attention will have to be given to diagonal policy integration in the future. The first crosses over with the discussion on multi-level governance in the EU, and concerns the increasing use of 'framework directives' and 'road maps' in various facets of EU policy (Newig & Koontz, 2014; Nilsson, Hillman, *et al.*, 2012; Nilsson & Persson, 2012; Von Homeyer, 2010). The second relates to recognition that a simplistic scalar separation of mitigation (national and international) and adaption (local and national) is problematic (Biesbroek, Swart, & van der Knaap, 2009; Mickwitz *et al.*, 2009). The third relates to growing cross fertilisation between the governance and sustainability transitions literature (Pisano *et al.*, 2014; Upham, Kivimaa, Mickwitz, & Åstrand, 2014; Voß & Bornemann, 2011).

2.2.3.3 Stages and Degrees of Integration

The third element refers to *stages of integration* ranging from differentiation to integration including: differentiation, coordination, cooperation and integration[17]. Janssens and Van Tatenhove (2000, p. 324) identify the differences as follows:

1. differentiation implies no coherence where policy sectors remain fully independent;
2. during coordination procedures and administrative instruments can achieve coherence (including adjusted policies or goals) while the sectors remain largely independent and distinct;
3. cooperation is characterised as 'coordination plus' where sectors work together to formulate partially mutual policies;
4. in the last stage, integration, a new unity is created and no distinction can be made between sectors.

In analytical approach originally put forward in Lafferty and Hovden there was never a sense in which the complete de-differentiation of sectoral policy would be desirable or achievable, quite the opposite. Rather EPI would be achieved through the alignment of the horizontal and vertical dimensions. In contrast to the strong version of integration offered by Janssens and Van Tatenhove, Stead and Meijers (2009, p. 324), characterise policy integration in terms of outputs where 'policy integration leads to joint decisions and/or actions and results in joint outcomes that may be quite different from the initial preferred outcomes'. A more frequently employed approach sees EPI as a matter of degrees of integration ranging from slight adjustment in non-environmental sectoral policy sectors to more substantial or reformist challenges and alterations of thought (Storbjörk & Isaksson, 2014, p. 1025). Storbjörk and Isaksson highlight *coordination, harmonisation and prioritisation*:

- *Coordination of policies to avoid contradiction is a limited form of integration*
- *Harmonisation means bringing environmental objectives on equal terms in order to promote synergies*
- *Prioritisation means seeing environmental sustainability as an overarching principle that allows environmental objectives to be integrated at all stages of policy making as a guiding principle*

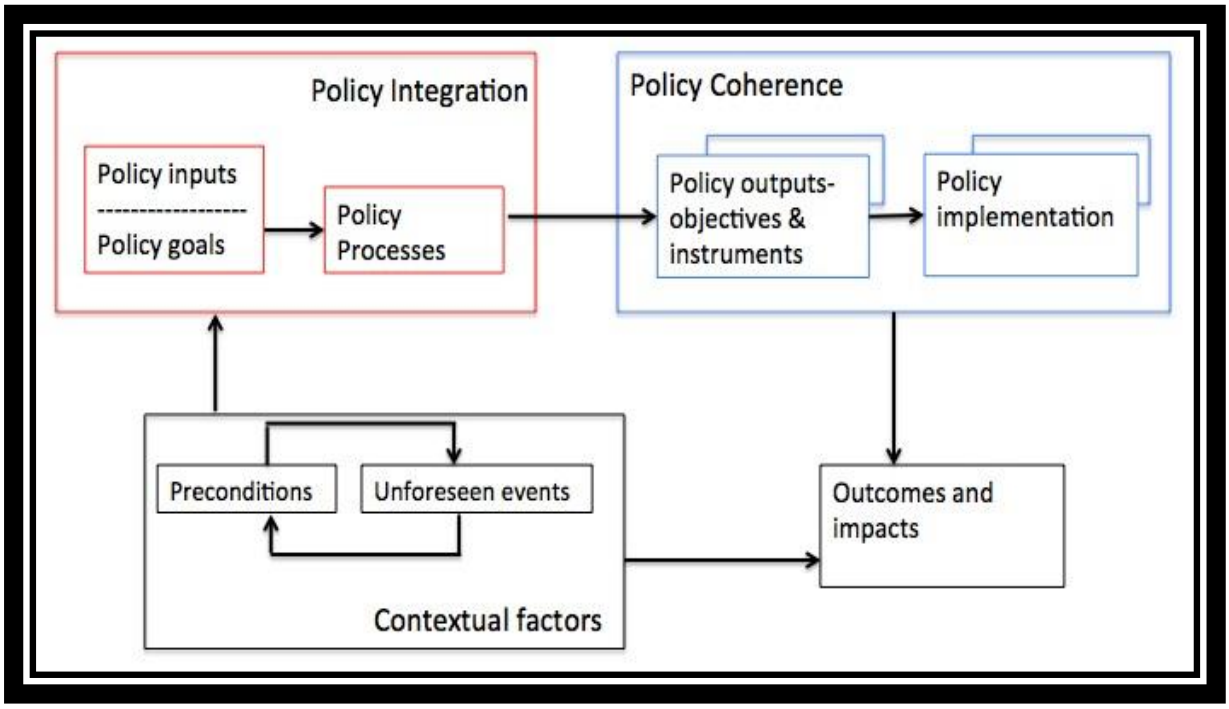
Kivimaa and Mickwitz (2006) and Mickwitz *et al.* (2009) provide an additional set of criteria, which according to Runhaar *et al.* (2014) can be combined with coordination, harmonisation and prioritisation to move us closer to a set of evaluative standards for EPI.

[17] An alternative conceptualisation is offered by Stead and Meijers (2009, p. 324) where the ordering is reversed *i.e.,* co-operation at the lowest level implies dialogue and information; and co-operation, which they liken to coherence and consistency, implies co-operation plus transparency and an attempt to avoid conflicts.

2.2.3.4 Integration and Coherence

An additional consideration is the question of 'coherence' highlighted by the OECD and EU, *Nilsson et al*. (2012). Coherence has increasingly been treated as a distinct but related topic to EPI (Mickwitz *et al.*, 2009). Adelle and Jordan (2014, p. 388) note that policy coherence is not only difficult to achieve, it represents 'the eternal problem' of governance. Mickwitz *et al.* (2009, p. 24) state that 'policy coherence is used to imply the incentives and signals of different policies to provide target groups with non-conflicting signals'. Nilsson *et al.* (2012) understand it as contributing to a discussion of bridging the 'upstream' and 'downstream' parts of the policy process [Figure 7].

Figure 7: Policy Coherence in a Policy Analytical Framework derived from Nilsson, et al., (2012, p. 397)



Unpacking the diagram Nilsson *et al.* (2012, p. 397) differentiate between:

1. inputs (knowledge, resources, actors inputting to the policy process);
2. processes (procedures and institutional arrangements shaping policy making);
3. goals (strategic targets defined by policy actors at a general level);
4. outputs (decisions on objectives and instruments to achieve policy goals);
5. implementation (arrangements for putting policy instruments into action;
6. outcomes (behavioural changes or responses of actors in society;
7. impacts (environmental and other effects resulting from outcomes).

They note that policy coherence refers to relationships *between* policies (the double boxes in the diagram). It is possible for individual sectoral policies (*e.g.,* transport, agriculture, energy, *etc*.) to be effective in achieving objectives without being coherent with the objectives of other policies. They also acknowledge the importance of contextual factors and contingencies, unforeseen

events that may change the preconditions influencing outcomes and impacts. Events such as the global economic recession may also prompt a rethinking of goals.

Stead and Meijers (2009, p. 328) summarise a number of challenges for coherence: (1) the desire for coherence can result in high degrees of centralised control and a consequent loss of flexibility in the policy-making system; (2) the gap between the need for coherence and the capacity to achieve it is conditioned by the complexity of contemporary governance and the multifaceted nature of public policy; (3) a related challenge is that the economic, social and political domains often operate with separate internal logics of coherence; (4) in democratic political systems, incoherence cannot be avoided but requires management and where synergies cannot be found political choices must be made. Nilsson *et al.* (2012, p. 413) acknowledge that their approach takes an instrumentalist-rationalist perspective that in reality is often not 'an evidence based or rationalistic process in pursuit of common goals', but a contested political process played out between multiple actors at multiple levels of governance. They go on to stress that in practice the orchestration of coherence in the context of sustainable development 'typically denotes not just the policy, but also the polity and politics' meaning that a comprehensive approach to governance can be elaborated. They caution that this risks weakening the analytic clarity of their framework.

2.2.3.5 Challenges for EPI

In terms of the broader sectoral challenges a number of issues arise in the literature. Persson (2007, p. 30) points out that while it is important to understand EPI from the policy making end of the spectrum, it is also important to understand the ultimate target for EPI, namely sector environmental performance. Derkzen *et al.* (2009, p. 148) stress that any analysis of integration is incomplete without an analysis of processes of 'sectoring' since both bargaining and interest group representation are involved. They note that sectoring is oriented towards 'protecting, if not advancing the differentiation of one sector from the other … Paradoxically, the focus on integrating sectoral policies runs the risk of reproducing and reifying the sectors themselves as they remain intact as units of collective action' (*ibid*.). Cross-sectoral policy integration is intensely political since it challenges existing policies and resource allocations among professional and administrative groups.

Understanding the contexts and characteristics of sectors is therefore of vital importance. Persson (2007, p. 30) notes that the 'proximity of the sector to environmental events or processes, the existing competence or legal basis for intervening in sectors and the technological potential for genuine win-win solutions' are all significant for implementing EPI. Following Hey (2002) she notes that sectoral regulatory capacity is a key factor for EPI that depends on 'the financial resources, legal competencies, legitimacy and target group support, and information on the sector regulatory authorities'. The latter is interesting because the relationship between

policy makers and non-state groups and organisations is likely to differ depending on the sectoral context (*e.g.,* transport, agriculture, energy). In the case of participatory governance arrangements there is a risk that 'powerful actors can become even more influential because of their superior resources and capacities' (Hogl, Kvarda, Nordbeck, & Pregernig, 2012, p. 284).

As Jordan and Lenschow conclude that 'while it is uncontroversial that EPI refers to the process of integrating environmental factors into sectoral policy decision making at a sufficiently early stage, the definition of integration (in the sense of what in practice to prioritse and to what extent) has been continually questioned and the normative debate continually reopened'. Dyrhauge (2014, p. 987) also cites Hey noting that:

> *'without a change in core principles guiding a policy, it is not possible to change the process of sectoral policy making; instead decision-making will continue to favour economic principles. Moreover, EPI would either represent sectoral growth strategies with strong sectoral regulatory capacities, which ignores environmental objectives leading to a negative impact on the environment, or alternatively, EPI would represent symbolic policies, which would incorporate environmental statements and objectives but contain weak regulatory capacity leading to weak implementation'.*

Hogl *et al.* (2012, p. 288) note that a kind of functional and territorial differentiation can take place in multi-level systems where normative starting points are often provided at the supranational level, but that implementation often takes place at local or regional levels. While higher levels often set general policy objectives and principles, lower levels are responsible for 'realising' integration through cross-sectoral operational programmes and projects. Contrary to the idea that rational policy design, consistent evaluation frameworks and critical success factors might underpin the prospects for EPI, Jordan and Lenschow (2008b, p. 339) suggest that political support is a powerful coordinator for effective EPI. They also point out that political support is highly contingent and unpredictable. Dyrhauge (2014, p. 997) examining EPI in EU Transport Policy, for example highlights that the economic crisis, as an exogenous factor strengthened the veto-power of economic actors and influences thereby diluting EPI.

2.3 Sustainable Development and Climate Change

Climate change has increasingly been seen as the paradigmatic sustainable development problem and the issues of sustainable energy and a low carbon emission society have captured increasing attention (Meadowcoft et al., 2012). The bifurcation of sustainable development into green growth and climate change was marked in the run up to Rio+20 (Drexhage & Murphy, 2010). Dovers and Hezri (2010) foreground an increasingly recurrent theme in the literature, namely a lament for the fact that the connection between climate change and sustainable development was not better maintained. As Dovers and Hezri point out 'fragmented knowledge, institutions and policies are a prime source of unsustainability'. They make two observations:

> *'There is an argument for maintaining a broader policy and research agenda of sustainable development, to ensure coordination of policy and institutional responses to climate change and other major sustainability issues. Sustainable development is the only candidate framework'.*
>
> *'The sharing of underlying problem attributes across climate change and other issues suggests that that there will be other benefits for climate policy, including adaptation (and vice versa), in looking beyond climate literature and policy insights'.*

While climate change is often represented as a sustainable development challenge *par excellence* the literature suggests that this was not necessarily always the case (Beg *et al.*, 2002; Swart, Robinson, & Cohen, 2003)[18]. Several reports have characterised the interconnections between sustainable development and climate change policies (Munasinghe *et al.*, 2003), however the graphic representation by Swart *et al.* (2003) captures the essential relationship. Nevertheless, sustainable development only figured marginally and gradually in the climate debate prior to 2007. Najam *et al.* (2003), for example talk of the climate change regime, of which the IPCC is part, inching 'towards acknowledging and exploring the inter-linkages between climate change and sustainable development'. Bizikova *et al.* (2007, p. 272) note that by the IPCC Fourth Assessment, linkages were made between climate change and sustainable development, and between adaptation and mitigation as cross cutting themes. They also highlighted a growing emphasis on 'the importance of sustainable development in reducing vulnerability to climate change' and the 'role of climate change in impeding nations' abilities to achieve sustainable development. This theme has continued into the IPCC Fifth Assessment Synthesis Report: Summary for Policy Makers (IPCC, 2014), but the point is even stronger: 'Climate change is a threat to sustainable development. Nonetheless, there are many opportunities to link mitigation, adaptation and the pursuit of other societal objectives through integrated responses' (IPCC, 2014, pp. 21–22).

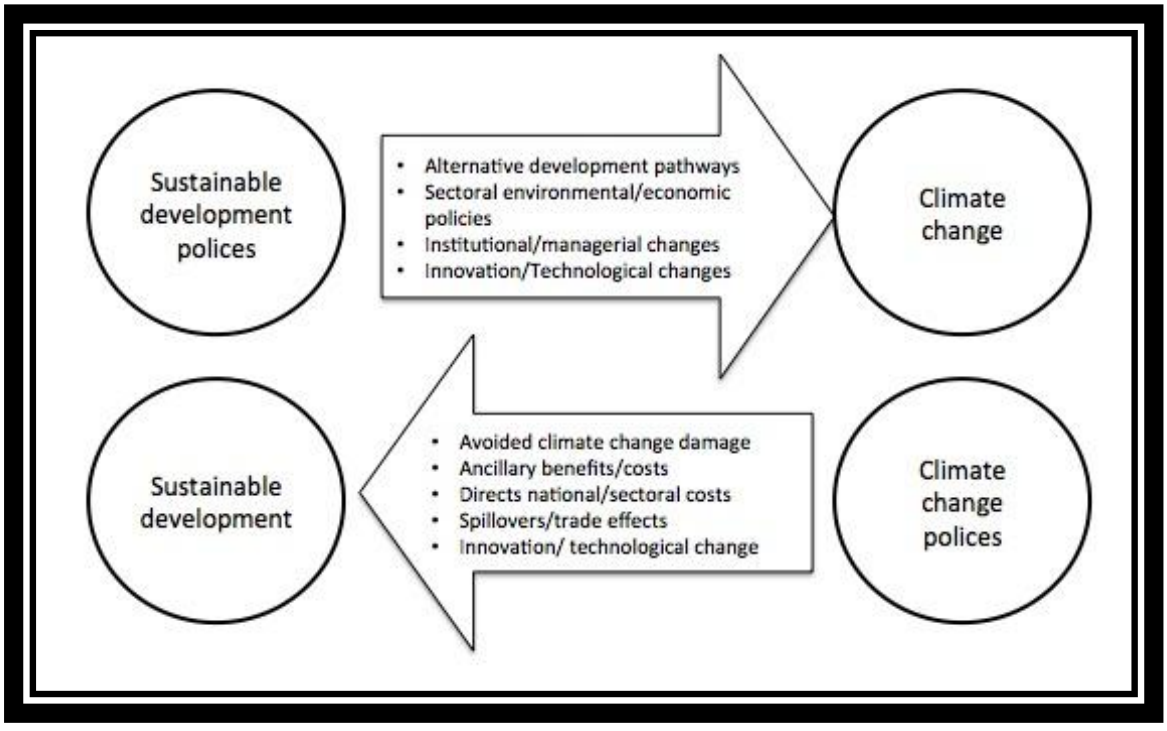
- *Strategies and actions can be pursued now which will move towards climate-resilient pathways for sustainable development, while at the same time helping to improve livelihoods, social and economic well-being, and effective environmental management. In some cases, economic diversification can be an important element of such strategies. The effectiveness of integrated responses can be enhanced by relevant tools, suitable governance structures, and adequate institutional and human capacity.*
- *Opportunities to take advantage of positive synergies between adaptation and mitigation may decrease with time, particularly if limits to adaptation are exceeded.*

The climate change debate has tended to branch into discrete debates on mitigation and adaption with each being considered largely independently of the other. Focusing specifically on

[18] See Banuri and Opschoor (2007) for an alternative analysis of the relationship between climate and development.

adaptation (Eriksen *et al.*, 2011) point out that little attention has been paid to the consequences of adaptation policies and practices for sustainability. This point is also garnering increasing attention in the mitigation literature particularly in the context of climate and energy policy interfaces (Morata & Solorio Sandoval, 2013). Bizikova (2007) and Bizikova *et al.* (2007) have coined the term Adaptation, Mitigation and Sustainable Development (AMSD) to highlight the need to reintegrate both the climate change debate and its relation to sustainable development. Although the acronym does not appear to have gained purchase in the wider debate, the problématique that it seeks to address has gained increasing currency (Biesbroek *et al.*, 2009; Casado-Asensio & Steurer, 2014; Dupont & Oberthür, 2012; Eriksen *et al.*, 2011; Klein Woolthuis, Lankhuizen, & Gilsing, 2005; Laukkonen *et al.*, 2009; McGloughlin & Sweeney, 2011; Mees *et al.*, 2014; Morata & Solorio Sandoval, 2013; Munaretto, Siciliano, & Turvani, 2014; Oikonomou, Flamos, & Grafakos, 2010; Rauken, Mydske, & Winsvold, 2014; Skjærseth, 2014; Solorio, 2011; Tosun & Solorio, 2011; Uittenbroek, Janssen-Jansen, & Runhaar, 2013; van den Berg & Coenen, 2012).

Figure 8: Linkages between sustainable development, climate change and policies in these areas (Swart *et al.*, 2003)



What this highlights is that despite the fact that the UNFCCC was part of the original Earth Summit Agreements the connection between sustainable development and climate change has had to be actively constructed, i.e. politically and socially. As Bührs (2009, p. 207) points out, however 'Climate change is just one of the many manifestations of the unsustainable development path the world is on. There is much more to the environmental problématique than reducing greenhouse gas emissions, however crucial that may be'. Bührs is not alone,

Sterling (2014, p. 89) warns against the *political pyrolysis of low carbon transitions* at the expense of overlooking other urgent environmental challenges.

Dovers and Hezri (2010) argue that the rapid growth in the climate policy literature has contributed to the development of self-referential processes, which could be counter balanced by considering past policy interventions and cognate policy sectors. They detect a nascent shift from the broad scales of climate modelling and local community scales of development and resource governance analysis towards scales where decision-making is defined by jurisdictional and legal and political authority especially national and sub-national level. The domain of climate change adaptation policy is they argue is made particularly complicated by questions of how much adaptation is required, contextual variation in impact and response, and the question of how to adapt 'on the ground'. Dovers and Hezri issue a clear warning 'mimicry is dangerous'- responses will be influenced by 'differences in climate exposure and bio-physical settings; socio-economic and development status; demographic character; and legal, political and institutional systems'.

2.3.1 The relationship between EPI and Climate Policy Integration (CPI)

Integrating the objective to reduce greenhouse gas emissions into other sectoral policies at the European and national level is referred to as 'climate policy integration' (CPI) in the academic literature and 'mainstreaming' in the EU (Rietig, 2013, p. 298). For Runhaar *et al.* (2014) climate policy integration is a 'specific form of EPI' or essentially the 'same idea'. Nilsson and Nilsson (2005, p. 364), regard CPI as a subset of the much wider principle of environmental policy integration. Casado-Asenio and Steurer (2012, p. 3) offer a comprehensive definition of CPI: as the development of a set of tools to change the process of policy making (1) across policy sectors (2) across levels of governance[19] within the same policy field and/or (3) across sectors and levels of governance at the same time, to ensure that climate mitigation and adaptation measures are taken into account (weak interpretation) or even given principled priority (strong interpretation)'. Adelle and Russel (2013, p. 2) suggest that Climate Policy Integration cannot simply be regarded as another take on the integration problamatique without further consideration.

Reitig acknowledges that although the overwhelming emphasis in the emerging literature on CPI is based on the concept of environmental policy integration, there are at least two distinct variants. The first is simply to *substitute* 'climate' for 'environmental' as a pre-fix for policy integration, the second is to *adapt* existing approaches to EPI while acknowledging the underlying differences between climate change and environment. In making this distinction, she points out that climate mitigation measures in energy may from an environmental point of view represent *problem shifting* (Nilsson & Persson, 2012) rather than problem solving *e.g.,* nuclear

[19] See van Nieuwaal et al. (2009) for a discussion of the state of the art in relation to climate governance

waste, changes in land-use due to biofuels, the impacts on biodiversity from hydro-electric or the impact of chemicals in shale gas extraction. She also points out that without the association with EPI there is only a weak basis for 'a principled priority' for CPI: *i.e.* CPI lacks a strong basis in international and regional treaties and has a weaker standing in international law and as a policy principle (*ibid.,* p. 299). Adelle and Russel (2013) ask pointedly: do EPI and CPI represent different challenges and is the more narrowly defined CPI easier or more tangible to conceptualise or implement. In a similar view Mickwitz *et al.* (2009, pp. 79–80) ask what can be learned from the experience with EPI to enhance CPI (and vice versa), and more importantly whether the current focus on CPI could give renewed impetus to EPI or kill it off completely? The latter suggests that approaching integration from the point of view a single (albeit complex) environmental problem risks closing off a connection to a more comprehensive and normative concept like sustainable development. Rietig (2012) states very strongly that 'climate policy integration' cannot simply be regarded as a sub-category of environmental policy integration or an automatic contribution to sustainable development[20]. This assertion seems to be borne out in empirical research on energy and climate (Morata & Solorio Sandoval, 2013).

Stead and Meijers (2009, p. 329), using the lens of spatial planning, note that policy integration is relevant to both the sustainable development and climate change agendas. They point out that 'mitigation of the effects of climate change will depend on the extent to which it is integrated into decision-making in other policy sectors, such as water and waste-management, energy supply, transport and infrastructure. Since 'the impacts of climate change may significantly alter land-use practices, spatial planning also has a significant potential role in developing adaptation strategies' (*ibid*.). Mickwitz *et al.* (2009, p. 84) make a similar point:

> *'Contrary to what is frequently claimed, climate change mitigation is not an issue solely for international and national policies. Regional and local decision-makers make a huge number of decisions that directly or indirectly affect traffic, energy production or energy use more generally. These and other decisions on land-use change –deforestation, peat land cultivation, etc. are crucial as regards greenhouse gas emissions. On the other hand, it is also clear that adaptation to climate change is not just a local issue. Water management and agriculture are just two examples of policy fields essential for adaptation, in which the general policy framework is largely decided by the European Union. In order to be efficient, the integration of both mitigation and adaptation aims would need to recognize the interconnections between multiple levels from the local to the international'.*

Casado-Asensio and Steurer (2014, p. 459) have performed a comparative assessment of National Sustainable Development Strategies, National Mitigation Strategies and National Adaptation Strategies. They conclude that integrated strategies are constrained by three sets of variables:

[20] An number of authors in the CPI literature begin from the proposition that we need to move beyond 'principled priority'

1. Despite their win-win rhetoric, the economy-environment axis usually ranks environment second, in particular when global economic competitiveness is at stake;
2. Integrated strategies were not able to change the fact that policy-making remains compartmentalised and the actors involved continue to think along sectoral and regional lines;
3. Institutional, cultural and social factors (including path-dependency and inertia) continue to thwart timely and adequate implementation.

Casado-Asensio and Steurer (2014, p. 437) reach the conclusion that these types of strategies fail as comprehensive governing processes that aim to better coordinate policies and suggest recalibrating them to pursuing functions that they can realistically fulfil.

> *'They could provide direction as a policy document and to build capacities and raise awareness for the problems that they cover, for example by systematically building knowledge bases, educating and training public administrators, informing and convincing the general public in general and non-state decision-makers in particular' (ibid., p. 460).*

This is quite a substantial modification of expectations vested in national strategies: namely a shift from coordination to communication. On the other, hand they also suggest that more focused strategies embracing sustainable development, mitigation and adaptation on a narrower, perhaps sectoral basis might be appropriate in terms of securing buy-in and ownership from actors with responsibilities and the power to implement them. Adelle and Russel (2013, p. 9) have noted that 'in practice EPI may be evolving into a number of discrete narrower exercises' *e.g.,* CPI, biodiversity integration but warn that this may well risk crowding out non-climate related environment issues from the policy arena. They are not suggesting that this is necessarily a positive development; rather it is trend that should be closely monitored. Nevertheless, sectoral approaches do intersect with the growing emphasis on sustainability transitions.

2.3.2 Evaluating CPI

Mickwitz *et al.* (2009) have developed a set of evaluative criteria for CPI that refers to: *inclusion, consistency, weighting, reporting and resources*.

1. The inclusion criterion simply refers to whether mitigation and adaptation (or perhaps sustainable development) is explicitly included in a policy. They give the example of a situation where a land-use policy is reformed because of a renewed energy policy emphasising decreased dependency on imported fossil fuels. Despite displaying synergies between with climate policy aims unless the elements mentioned are present it does not qualify as policy integration (ibid., p. 22).
2. The second criteria is the 'consistency of the integrated environment or climate change aspect in relation to other aspects'. Unless policy compromises attempt to address the

issue of overall consistency between goals and instruments it does not amount to integration.

3. The third criterion combines Liberatore's idea of 'reciprocity' and the Lafferty and Hovden's 'priority' criterion as weak and strong elements of a weighting criterion. The weaker criterion assumes that reciprocity or 'at least equal weighting of sector and environmental policy' is necessary to avoid dilution (Libertore 1987 cited in Nilsson & Persson, 2003, p. 335). Otherwise the 'cutting edge and profile of cross-cutting perspectives become lost in the maelstrom of organisational machinery' (Williams 2002 cited in Storbjörk & Isaksson, 2014, p. 1025). In the context of mitigating and adapting to climate change, there will invariably be conflicts and compromises between policy areas. In some cases, win-win scenarios are possible, but in other cases balancing may not be and possible hard political choices will have to be made. In the case of the latter, the weighting of climate objects in relation to other policy objectives will be critical. The stronger criterion of principled priority for either EPI or CPI as Knudsen (2009) points out acts as a 'trump' card for making trade-offs explicit.
4. The fourth criterion reporting emphasises the importance of feedback for policy implementation including: the degree to which strategies specify measures for follow up and reporting ex ante; and how information on mitigation and adaptation, including policy instruments for implementation are included in ex post evaluations (Mickwitz et al., 2009, pp. 22–3).
5. Recognising the road to hell is paved with good intentions they also add a fifth criterion 'the resources for integrating climate change aspects' covering knowledge (including know-how of those involved; the time they are able to spend on these issues; and the resources (including money and personnel) at their disposal (ibid., p. 23).

2.4 Towards an Evaluative Framework

Runhaar *et al.* (2014) have proposed linking the 'degrees of integration' adapted from Lafferty and Hovden (2003) and the criteria from Kivimaa & Mickwitz (2006) and Mickwitz *et al.* (2009) in order to bridge the gap between assessing performance not only in the decision making stage of the policy cycle but also the implementation stage. They outline the approach as follows:

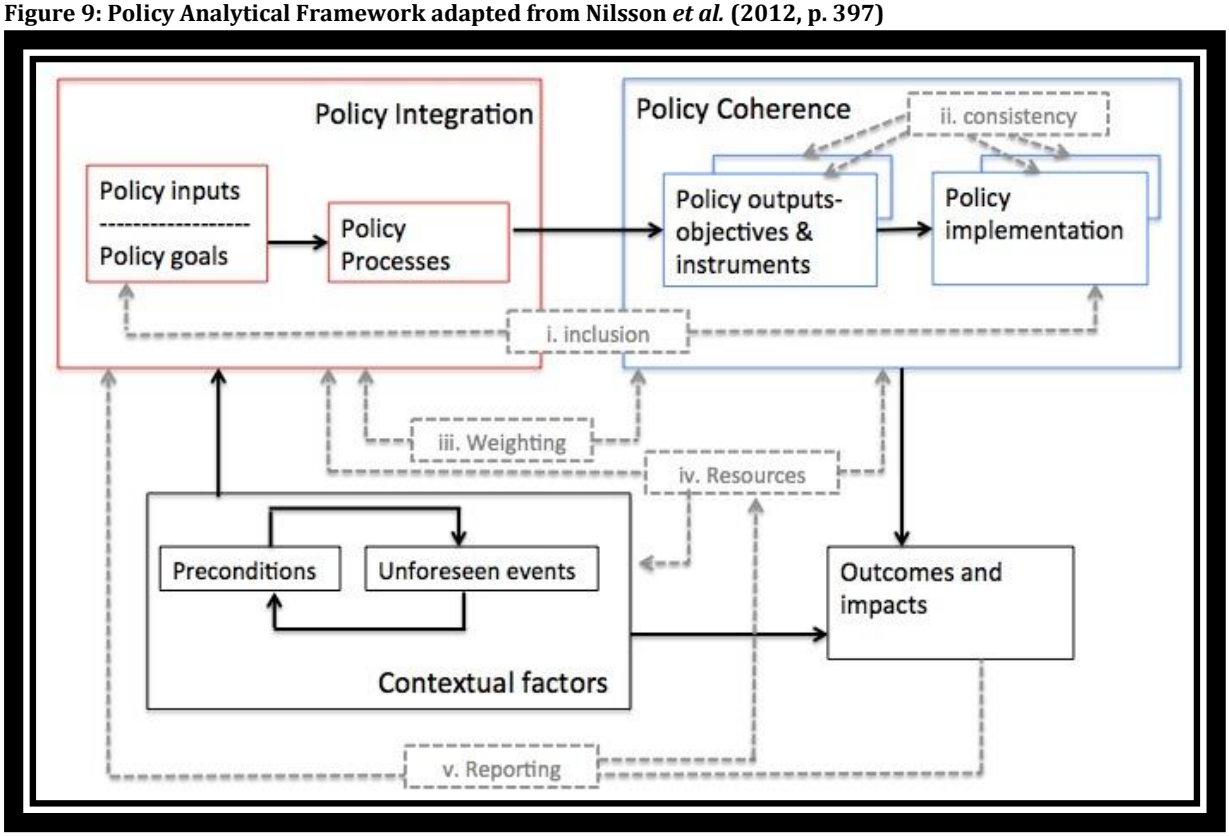
1. The criteria of 'inclusion and consistency' are important for the assessment of policy outputs in terms of formal decisions (including policy documents and subsequent operational decisions like the implementation of concrete measures). These criteria indicate whether and how (consistently) environment and climate concerns are taken into account, but not to what extent.
2. In order to measure the *extent* to which environment and climate concerns are taken into account during various stages of the policy cycle they invoke the weighting criterion

during the policy cycle and seek to operationalise it using Laffery and Hovden's distinction between coordination, harmonisation and priority to distinguish between degrees of integration as regards sectoral priorities.

3. By assessing performance throughout the policy cycle, the *reporting* criterion could be taken into account.
4. Despite the challenges of *linking outputs and impacts to environmental quality* they suggest that various estimations should be possible (*e.g.,* using EIA or SEA, or factoring in medium term assessments like State of the Environment Reporting or Environmental Performance Reviews).
5. While Runhaar *et al.* (2014) do not integrate the *resources* criterion *per se*, some resources are more tangible and quantifiable, *e.g.,* budgets (Medarova-Bergstrom, Volkery, Schiellerup, Withana, & Baldock, 2011), staffing; others are more intangible and qualitative, *e.g.,* networks and knowledge but could be mapped in specific sectoral and cross-sectoral cases and factored into any evaluation (NESC, 2014a).

Taking these observations on board we have tentatively mapped these criteria onto Nilsson *et al.* (2012) in Figure 9. This is as much a stimulus for further debate and reflections as it is a synthesis of current evaluative criteria. While our 'placing' of these criteria will doubtless be open to contention and critique, our hope is that it might lead to further specification and refinement.

Figure 9: Policy Analytical Framework adapted from Nilsson *et al.* (2012, p. 397)



3 Transitions and Integration: Lessons from different levels

The theme of environmental innovation and sustainability transitions is high on the agenda of many countries, the EU, the International Energy Agency (IEA), the OECD, the World Economic Forum (WEF), and World Bank (Van den Burgh, Truffer, & Kallis, 2011). Europe 2020 (European Commission, 2010a), for example, is based on a vision of smart, sustainable and inclusive growth. The 'transitions management' approach, which has gained ascendancy in environment and sustainable development policy in the 21st century as a model of science (broadly construed) – policy interface, has begun to diffuse into different national and international contexts and influence academic and policy reflections on steering social change towards sustainability. A recent bibliometric analysis by Markard *et al.* (2012) has identified a steady growth of articles in academic journals from the late 1990s with a sharp upturn from 2005 onwards. Sustainable development emphasises explicit interest in the normative direction of innovation since: the challenge for innovation no longer rests solely in economic potential, but also in the societal changes induced and the consequences of this for environmental and social sustainability (Smith, Voß, & Grin, 2010, p. 3). Innovation, though often framed as technological innovation aimed at stimulating economic growth *i.e.* techno-economic innovation, does not exhaust the possibilities the term entails – there is a growing literature on innovation for sustainability, governance for sustainability and societal innovation that extend its scope. In the context discussed here this also extends to policy innovation (Hildén, Jordan, & Rayner, 2014; Massey & Huitema, 2012; Upham *et al.*, 2014).

The conceptual understanding of transitions draws upon theories at the interface of innovation studies and science and technology studies (STS), but also has roots in ecology and in policy analysis (Voß & Bornemann, 2011). Chandler (2014), for example, in his discussion of the 'governance of complexity' notes the influence of C.S Hollings work on ecosystems emphasising that 'resilient systems [that] involve complex adaptivity, with the existence of multiple stable states or regimes' has diffused into wider debates on governance in the 21st century. For simplicity sake we will adopt the mantle of 'transition studies' (Avelino & Rotmans, 2009), as an umbrella term for an emergent field that is far from equilibrium. It is perhaps too early, or even undesirable to speak of a theory of transitions in the singular, as the field develops recursively through a deductive inductive loop that conjoins emergent theorisation with empirical cases. Transition studies concern:

> *'societal systems at the level of sectors or regions. This systemic perspective requires as certain holistic view that acknowledges the interaction between human and non-human interaction. Influence on society is not only social, cultural, institutional or political, but also economic, ecological and technological. Social actors are reflexive and as such shape and influence the dynamics of the system they inhabit' (ibid.,* p. *544).*

In this context, the boundaries of environmental governance have shifted towards a more reflexive form of governance for sustainability that:

> *'abandons the assumption of 'one' adequate problem framing, 'one' true prognosis of consequences, and 'one' best way that could be identified in an objective manner from a supervisory outlook on the (socio-ecological) system as a whole. Instead, it integrates a diversity of perspectives, expectations and strategies in a complex understanding of societal change.* (Voß & Bornemann, 2011)

Many approaches to sociotechnical transitions and reflexive governance employ a 'multi-level' model of innovation that has three layers of heuristic, analytical concepts of landscape, regime and niche (Morrissey, Mirosa, & Abbot, 2014). A sociotechnical *landscape* refers to surroundings of a particular societal system under study, where there are trends with relatively slow progress or autonomous developments. A *regime* is the dominant configuration of actors, structures and practices that dominates the functioning of the social system and defends the status quo. *Niches* are configurations where experimentation, non-conformism and innovation can develop (Avelino & Rotmans, 2009, p. 545). In this model change takes place through 'coevolution and mutual adaptation between the layers' and it is used to describe how new technologies or *social* practices emerge in protected niches and become working configurations that shape and reshape the regimes and landscapes they sustain and that are in turn sustained by them (Walker & Shove, 2007). Grin *et al.* (2010, p. 325) have provided an analysis of type of pathways to the future that are likely to emerge conditioned by the interplay of the three levels, summarised below:

1. Without landscape pressure, the regime is likely to remain dynamically stable (the reproduction pathway)
2. With moderate landscape pressure and underdeveloped niche innovations, regime actors will modify the direction of development (the transformation pathway)
3. Under avalanche (large and sudden) landscape changes de-alignment may take place, followed – if there are sufficient and diverse niche innovations by re-alignment (the de-alignment and re-alignment pathway)
4. Under significant landscape pressure, when niche innovations have been sufficiently developed, these may break through and regime change may occur (the substitution pathway)
5. Symbiotic niche innovations may synergistically solve local problems and then eventually lead to regime change (reconfiguration pathway)
6. If landscape pressure takes the form of disruptive change, transformation is likely to be followed by reconfiguration and possible eventually by substitution or de-alignment or realignment.

They note however that globalisation is leading to profound changes in the relationship between states, markets and civil society and highlight the questions of whether and how this might induce alternative transition pathways (*ibid*.). Pisano *et al*. (2014, p. 10) argue that the 'transitions management approach' offers a practical operationalisation to facilitate the governance of transitions to sustainable development, particularly because it seeks to 'overcome the conflict between long-term imperatives and short term concerns'. In terms of implementation, they identify 'the transition management cycle' as a way of conceptualising the process. Following Loorbach (2010) they trace the development of strategic, tactical, operational and reflexive dimensions of the process (Loorbach cited in Pisano *et al.*, 2014, p. 12). At the *strategic* stage there are processes of problem structuring, developing long-term strategic visions and the organisation of 'transition arenas'. The latter refer to 'institutions for facilitating interaction, knowledge and learning between actors'. The *tactical* stage involves the development of 'coalitions, images of the future, and transition agendas'. The creation of transition agendas involves different phases moving from a small network of strategic actors discussing the transition problem and outline goals, to expanding to actors with practical knowledge about processes of change to develop transition pathways and link them to existing policies. In the *operational* stage other actors are mobilised through short-term projects and experiments. The reflexive stage involves monitoring, evaluation and learning that can be used to assess lessons from projects and experiments together with relevant policies and subsequently adjust vision agendas and coalitions (*ibid.,* pp. 11-12).

Pisano *et al.* (2014) have examined a number of key international initiatives that are relevant to transitions to sustainable development. We suggest that these may well exert pressure on national governments to continue to strive for the integration of policies for sustainable development, including EPI (see 3.1 in this report). Equally, developments at the level of EU policy are likely to have significant impacts in shaping national sectoral regimes. We therefore sketch the reframing of policy paradigms in agriculture and energy at EU level over time to understand some of the implications for EPI in national sectoral regimes (see 3.2). Finally, we look to studies of local level implementation across the EU to understand some of the key successes and challenges for EPI (3.3).

3.1 Lessons from the wider landscape: Developments in global governance

In January 2012, the annual gathering of elite decision-makers from spheres of business, politics and academia convened at the World Economic Forum Annual Meeting in Davos-Klosters under the rubric of 'The Great Transformation: Shaping New Models' with the central focus on the emergence of convergent crises and on strategies for adaptation:

> *'Persistent stresses on natural resources, climate extremes, natural disasters, poverty, unemployment and political unrest have pushed the world to a tipping*

> *point. But the pessimism of 2011 is being offset by the emergence of new ways of thinking and innovations, resulting in models that could be scaled up – providing there is political will and 'people power' embedded in public-private partnerships. Many sustainable growth technologies and models are originating from emerging markets, where economic pressures are the inspiration for innovation'* (World Economic Forum, 2012, p. 4).

Later that year, one of the key structuring themes of Rio+ 20 was the emphasis on the 'green economy'. On the one hand, this can be interpreted as a process of mainstreaming or a 'green turn' (Bina & La Camera, 2011, p. 2310) as notions of eco-innovation that were previously confined to sectoral niches of the economy (Jänicke, 2011, p. 5) have become the basis of the restructuring and rejuvenation of the economy as a whole. On the other hand, we are still very much within the territory of traditional economic growth paths (Berger & Gjoski, 2010, p. 24), with environmental considerations instrumentalised in strategies of crisis prevention (Jänicke, 2011, p. 16). Either way the idea of a climate friendly low carbon economy has become a key storyline in recent narratives of sustainability. The green turn embodied in discourse of green economy, green growth, sustainable growth, 'green new deal' frame the problem as 'declining economic growth, partly as a result of the latest financial crisis, but also as policy makers look to the future a mix of trends suggesting rising population pressure on limited and deteriorating resources may negatively affect the engines of growth' (Bina & La Camera, 2011, p. 2310). While many analysts (Berger & Gjoski, 2010; Bina & La Camera, 2011; Jänicke, 2011; Tienhaara, 2010) perceive opportunities, as well as threats, in the green turn, it has not been universally perceived as a positive development (Drexhage & Murphy, 2010; Pisano, Endl, & Berger, 2012).

Pisano *et al.* (2014, p. 16) argue that the global financial crises has triggered international efforts for more sustainable ways. They have identified four prominent international initiatives that they argue exhibit important characteristics of sustainability transitions:

1. the OECD's (Organisation for Economic Cooperation and Development) Green Growth;
2. UNEP's (United Nations Environment Programme) Green Economy;
3. the World Business Council for Sustainable Development's (WBSCD) Vision 2050;
4. the United Nations Post 2015 Agenda and proposals for Sustainable Development Goals (SDG).

They note that all of the documents refer to the sustainable development discourse with varying degrees of emphasis (*ibid*., p. 17): the OECD's Green Growth focuses on economic growth with an emphasis on the economic dimensions of sustainable development; UNEPs 'Towards a Green Economy' considers the economic, social and environmental dimensions equally; the UN Secretary General's High Level Panel of Eminent Persons on the post 2015 Development Agenda also focusses on all three elements of integration; and the WBCSD Visi on 2050 is less precise. Pisano *et al.* also note that all of the documents engage to a greater or lesser degree with the

idea of sustainability. The UNEP document makes the most explicit connection, specifically mentioning the socio-technological transitions and the need for radical technological and social change. The WBCSD suggests a pathway that will require fundamental changes in governance structures, economic frameworks, business and human behaviour. The High Level Panel calls for a new paradigm and new global partnership driven by five transformative shifts (Pisano *et al.,* 2014, p. 18):

- *Leave no one behind;*
- *put sustainable development at the core;*
- *transform economies for jobs and inclusive growth;*
- *build peace and effective, open and accountable institutions for all;*
- *forge a new global partnership.*

They argue that the OECD document offers the least radical vision of change of the four examined (*ibid*., p. 18). With the exception of the post-2015 Agenda that proposes goals and targets through the Sustainable Development Goals (SDG) most of the initiatives lack concrete implementation proposals and guidelines. However, Pisano *et al.* note that the OECD and post-2015 agenda 'that implementation strategies cannot be identical and one size does not fit and cannot follow a 'one-size-fits- all' prescription (*ibid*., p. 21). The implication is that global targets have to be executed within specific national planning processes.

3.1.1 The Post-2015 SDGs and the 7th EAP: 'New' Normative Horizons for EPI?

Recent developments in the global environment governance and governance for sustainable development literature though perhaps not scalable in terms of the national and subnational adaption of EPI contain some concepts and lessons that are of significance to our discussion here. Articles by Kent (2014), Nilsson and Persson (2012), Oberthür (2009), and Underdal (2013) have all highlighted the implications of the interplay between international institutions and the implications for EPI.

3.1.1.1 Global Horizons for EPI

Nilsson and Persson (2012, p. 62) examining the literature on Earth System Governance point to a growing interest in the international literature on governing interactions between land, water and energy systems or the *nexus* perspective. At one level, this seems well above the levels we are discussing, but it has some familiar problems or perhaps better, limitations. They take as their starting points existing or known governance arrangements rather than articulating a theoretical model or ideal type and draw on the 'planetary boundaries' [21] discussion to provide 'a policy assessment framework' (*ibid*., p. 62). In particular they focus on four dimensions/ boundaries: climate change, land-use, biodiversity and freshwater. They reason that such an

[21] For a detailed discussion of the concept of planetary boundaries see Pisano and Berger (2013).

analysis can reveal whether there is policy coherence across sectors with respect to strategies to stay within individual boundaries *i.e.* whether they are compatible or even synergistic, or whether there is incoherence and the result is *problem shifting* [our emphasis] rather than problem solving of the planetary boundaries as a whole (*ibid*., p. 62). The challenge for EPI is that the task may not just be about EPI or sectoral integration, but much more systemic attention to the internal coherence of environment and natural resource policies (*ibid*., p. 62). At the same time they point out that the challenge for the EU, 'is not to make the EU stay within a set of down scaled boundaries, but how Earth system interactions can be properly recognised and problem shifting between sub-systems avoided at European level by ensuring development pathways that in turn are stimulated and supported by coherent governance arrangements' (*ibid*., p. 64). From a normative perspective the scientific 'planetary boundaries' debate intersects with post-2015 Sustainable Development Goals.

The crux of their argument is that we need to take a step backwards, before moving forwards by considering three core *functions of governance*. The first is to *reduce system stresses, risk and vulnerabilitie*s. This involves traditional environmental policy supplemented by knowledge exchange on norms and safeguards (combining cognitive and regulative modes of governance) and includes: regulation and standards; data collection and monitoring; organised knowledge exchange and mechanisms for adaptive governance. The second function of governance is *triggering and navigating transformation of economic activity.* It implies a redirection of government budgets to facilitate transformation to a more sustainable economy rather than bolstering consumption. Green public procurement and public private partnerships have a role to play here as do taxation instruments that internalise the social costs of environmental pressures. Beyond market models they also note that 'hard regulation' (product regulation, industrial benchmarks, and sustainability criteria) is increasingly being acknowledged as playing a role in reducing uncertainty, creating stability for industries to innovate, invest and compete (*ibid*.). The final function is to *develop a diversity of options* which is a key element in the transitions debate. 'A key element of governing transformative change is the identification of alternative futures and the assessment of their viability and desirability' (*ibid*., p.68).

In policy terms Nilsson and Persson give the example of EU 'roadmaps' on resource efficiency, low carbon economy and energy. There is some connection with the discussion of the governance of innovation for sustainable development (Leach *et al.*, 2012) and the 3D (*i.e.* direction, distribution and diversity) approach to sustainability, but the emphasis there is on 'pathways to sustainability' which is much less determinate. Nilsson and Persson (2012, p. 68) see this function of governance as being rooted in 'cognitive modes of governance, but with a

broad set of actors across multiple levels', building-in 'diversity and redundancy[22] to cope with uncertainty', emphasising adaptive governance rather than stability and reducing the risk of technological 'lock-in'. It still very much involves the state but acknowledges roles for the private sector and academia as well as 'boundary organisations' providing bridging functions (consultancies, NGO's, research institutes, and knowledge networks). We find a similar emphasis in Underdal (2013) considering the co-evolution of policies and practices in international environmental governance. He argues that 'organisations and networks provide forums for exchanging information and ideas, co-ordinating behaviour and reviewing performance …leaders, secretariats and other bodies can provide independent and useful inputs into negotiations and other types of processes' (*ibid*., pp. 20-21).

Returning to EPI, the core concern of this paper, they revisit the recurrent theme across various literatures of the 'reality' of interest group politics; that procedural mechanisms are not just technical (like varieties of impact assessment) – but also extend to better access for more diverse interest groups in society contributing to policy learning and even 'reframing'. They also note the resulting integration *could* lead to more coherent policy outputs and outcomes if broader objectives are 'aggregated', tempered by the limitations of institutional and political considerations: there are cognitive limits at the individual and scientific levels and political limits at different levels of governance (*ibid*.). 'Integration in this sense is not a technical exercise but an *art* of constantly weighting comprehensiveness against the risk of over-burdening and delaying urgent decisions' (*ibid*.). 'Social norms and interests will determine the political viability of new governance attempts', but 'biophysical interactions are of such complexity that they cannot possibly be orchestrated in a synoptic way' (*ibid*., p. 69).

3.1.1.2 EU Horizons for CPI

Rietig (2013) reflecting on CPI in the EU suggests that there are two options for determining criteria for 'sustainable climate policy integration'. The first is science based quantitative sustainable development indicators (SDIs) and the second is policy based sustainability strategies such as the EU SDS that emerged from the Cardiff process. She suggests that indicators tend to be predominantly *ex post* examining progress at a particular point in time given available empirical information. In order to make indicator based approaches more meaningful (*ex-ante* for policy making and *ex-post* for policy evaluation) indicators need not only to satisfy science based requirement, but must also have a basis in normative and socio-political dimensions (Rietig, 2013, p. 300). She suggests an alternative methodology rooted in linking four key policy objectives of the EU SDS (environmental protection; economic prosperity; social equity and cohesion; and meeting international responsibilities) with sustainable development guiding policy principles (policy integration and coherence; environmental protection; socio-economic

[22] This would appear to directly contradict one interpretation of EPI where Peters discusses policy coordination as reducing redundancy (*cf*. Persson, 2004, 2007)

development; justice and participation).[23] In the case of policy integration and coherence she points to reducing GHG emission, adapting to unavoidable consequences of climate change and avoiding contradictions between policies. In relation to environmental protection she stresses the importance the efficient management of resources to maintain ecosystem integrity, the efficient use of energy and resources in production and consumption, the precautionary principle and the polluter pays principle. With regard to socio-economic development the focus is on GDP growth/ growth per capita that is decoupled from pollution and GHGs emissions, takes environmental costs into account and is socially inclusive. Finally justice and participation refer to the involvement of stakeholders through participatory governance and intra- and intergenerational justice (Rietig, 2013, p. 302).

3.1.1.3 The Interplay between the global and EU levels

Endl and Berger (2014, p. 39) detect tentative steps at alignment with global environmental challenges and discourses in the 7th Environmental Action Programme (7th EAP). Pisano and Berger (2013, p. 20) note that the concept of 'planetary boundaries' and the post-2015 agenda is increasingly considered. Referring to the 7th EAP, the EU Commissions standing position on the post 2015 agenda, and Council Conclusions of June 2013 they see the growing imprint of the global debate on EU policy discourse. For example, they point to the Conclusions on the topic the Overarching 2015 Agenda (para. 10) committing the EU and Member States to an 'inclusive and equitable green economy in the context of sustainable development and poverty eradication' (*ibid*.) Endl and Berger (2014, p. 39), however, conclude that a sectoral policy strategy such as the 7th EAP will not be able to achieve policy coherence for sustainable development, but will require a meta-strategy for sustainable development for the EU and Member States. While Endl and Berger appear to adopt a normative perspective suggesting that collectively we need to 'raise the bar', recent empirical research by their colleagues (Casado-Asensio & Steurer, 2014) suggest that we may need to 'lower our expectations' with respect to the functions that integrated strategies can actually perform. Nevertheless, developments such as these in the wider policy landscape will no doubt exert pressure on member states for adequate responses. As we can see these developments involve a shift in the narrative (some might say drift!) on sustainable development on an international level. In the next section we will examine the reframing of sectoral narratives in the EU, in a temporal dimension, within two sectoral policy regimes: agriculture and energy in order to assess the implications for EPI.

3.2 Shifting Integration Paradigms? Lessons from Agriculture & Energy

The contextualisation of policy formulation is important to understanding environmental policy integration at a sectoral level. This section explores two sectors inherently associated with the environment *i.e. a*griculture and energy, the development of the environmental dimension

[23] For more on meeting international responsibilities see Bina *et al.* (2009); Durán and Morgera (2012); Gomar Velázquez (2014)

within these policy domains is tracked over time and the consequence of the respective changes in policy integration paradigms for EPI is considered.

Agriculture is axiomatically linked to the environment and traditionally it has been assumed that the two have a harmonious relationship (Barnes & Barnes, 1999, p. 209). There was an almost cultural belief (propagated in part by influential interest groups) that what was good for farming was good for the environment; see for instance Ruhl (2002) for examples of the deference paid to agriculture. However, notwithstanding these views concern for the environment, albeit primarily of a naturist persuasion, was at least on the agricultural policy agenda (Winter, 1996: 169-192). It took a long time for an acknowledgement from policymakers, agricultural interest groups and wider society that farming does not inherently have a symbiotic relationship with the natural environment (Buller, 2002, p. 103). This belated acknowledgement – and it could be argued the continued, albeit moderated, deference to the perceived exceptional nature of agriculture has a significant influence on the policy solutions proposed for the sector.

Although the energy sector is in many respects equally connected to the environment to agriculture, energy policy for a long time did not acknowledge an environmental dimension. The oil crises of the 1970s brought energy efficiency to the fore and while the prevailing policy context for this change was energy security, environmental issues also entered into the debate (Barnes & Barnes, 1999, p. 230) *e.g.,* the inclusion of environmental concerns for the first time in the 1973 'guidelines and priority actions for community energy policy' of the then European Economic Community (EEC).

3.2.1 EU policy context

The Common Agricultural Policy (CAP) is a cornerstone and one of the oldest policies of the European Union. Beginning in the 1962 with objectives of price support and food security, in the intervening half-century it has undergone periodic revision (see European Commission, 2012). Until the 1980s the CAP was characterised by purely productivist goals; however since then it has increasingly been influenced by a discourse on the sustainability of agriculture originating outside the agricultural sector, in environmental non-governmental organisations and the research community (Hildén, Jokinen, & Aakkula, 2012, p. 3392). This was mirrored in similar evolution of policy in other developed economies *e.g.,* Canada (Weersink, Livernois, Shogren, & Shortle, 1998, p. 311).

It has been argued that the integration of environmental concerns into agriculture policy in the 1980s emerged more as a politically acceptable rationale for continued financial support of agriculture in the context of the then crises of the CAP[24], than from explicit environmental considerations – although some political discourse did explicitly embrace the environmental

[24] Including: trade distortion; budgetary overruns, international trade arguments; failure to meet income support objectives; objections from environmental non-governmental organisations, *etc.* (Weyerbrock, 1998)

aspects of agriculture; notably the UK House of Lords consideration of the mid-1980s CAP reforms (Winter, 1991, p. 51). The acceptance of agri-environmental schemes by what was (and still is in many ways) the closed policy community of agriculture can perhaps be seen as representing not so much genuine integration as a defensive co-option of environmental values by the agricultural community[25] (Baylis, Peplow, Rausser, & Simon, 2008, p. 755; Thomas, 2003; Whitby, Moxey, & Lowe, 1998). A more sympathetic view is that the policies arose from a recognition that there was a triple-win from paying farmers to reduce their productive capacity, *i.e.,* protecting the environment, lowering CAP costs of dealing with surplus production, in addition to providing a rationale for income-support measures (Hodge, 2013, p. 255).

The recognition of the negative environmental impacts of agriculture and the need to minimise them, coincided with the development of the concept of multifunctional agriculture[26], which sought to recognise the non food (and fibre) producing ways in which farming benefited the environment and society (Renting et al., 2009, p. S112). The 1992 'MacSharry' reforms of the CAP, in keeping with the 1992 Earth summit's emphasis on sustainable development (UNCED, 1992), and its discussion of agriculture's multifunctionality, (Renting et al., 2009, p. S113) saw new environmental obligations being placed on agriculture as part of the so-called European Model of Agriculture. The reforms emphasised the concept of famers being responsible for maintaining the rural environment as a public good 'in the form of a well-tended countryside, thriving biodiversity, the prudent use of natural resources and conservation of cultural sites and objects' (European Commission, 2012, p. 11). Within this context, there were alterations in the CAP structure and specifically a movement from market support measures to direct producer support some of which was dependent on adherence to the increased environmental obligations.

Although two of the three supranational organisations that led to the European Union were concerned with energy the Union only has formal competency with respect to energy since the 2007 Lisbon Treaty[27]. However the EU has a long history of policies relating to energy[28] for example security of supply, market liberalisation, and including since the late 1990s attempts to integrate environmental aspects (Morata & Solorio Sandoval, 2013, p. 556).

In contrast to agriculture policy, the initial moves to consider environmental issues in energy policy appear to have arisen from environmental concerns. For example atmospheric pollution

[25] However, such schemes have disparate aims *e.g.*, farm income support, extensification of agriculture, environmental protection– this diversity of rationales leads to a lack of incentive to systematically measure their success (Wilson & Buller, 2001).

[26] Multifunctional agriculture – consideration of its non traditional roles of *e.g.,* in managing natural resources, landscape, conservation of biodiversity and contribution to the socio-economic viability of rural communities (Renting *et al*., 2009)

[27] Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community

[28] European Coal and Steel Community ECSC; European Atomic Energy Community (EURATOM)

which manifested itself in environmental and health impacts at both local *e.g.,* smog and transnational levels *e.g.,* acid rain (Graedel & Crutzen, 1989). Growing awareness of climate change and the contribution of the energy sector has intensified efforts to integrate environmental and energy policies.

There was some acknowledgement of environmental aspects in the aftermath of the 1970s oil crises, such as the 1986 common objectives of the EEC, which included the objective of achieving '*balanced solutions between energy and the environment*' (Collier, 2002, p. 177) and the 1990 '*Communication from the Commission to the Council on Energy and the Environment*', which first raised the issued of climate change and greenhouse emissions in addition to other environmental concerns (Gerelli, 1992, p. 172).

The 1987 Single European Act first introduced consideration of environmental issues in EU policy-development stating '*Environmental protection requirements shall be a competent of the Community's other policies*' (Piorr, 2003, p. 18). The Maastricht Treaty 1992[29] furthered the case of environmental policy integration at the EU level stating '*Environmental protection requirements must be integrated into the definition and implementation of other Community policies'*. This was subsequently linked explicitly to sustainable development in the 1997 Amsterdam Treaty, which said '*Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities referred to in Article 3, in particular with a view to promoting sustainable development.*'

The 1998 Cardiff European Council marked the moved towards a more systematic integration of environmental aspects in policy when it invited the *'…all relevant formations of the Council to establish their own strategies for giving effect to environmental integration and sustainable development within their respective policy areas, considering the transport, energy and agriculture sectors for the first wave of this process…*' (Morata & Solorio Sandoval, 2013, p. 557).

3.2.2 EU Agriculture EPI

The European Council in Helsinki adopted a strategy (European Council, 1999) to integrate the environmental dimension into the CAP (EEA, 2006, p. 7). Subsequently the so-called 'Agenda 2000' reforms asserted a European model of agriculture based on 'healthy and pro-environmental production practices, capable of producing high-quality products that meet the requirements of society' (Hildén et al., 2012, p. 3392). More recently, there has been a further shift in emphasis from sustainable agriculture to sustainable rural development, with more focus on the economic and social dimensions of sustainability (Hildén et al., 2012, p. 3393). CAP seeks to achieve environmental integration by a variety of economic means, including financial support and positive and negative incentives for pro-environmental behaviour (EEA, 2006, p. 35). Since

[29] Also known as the Treaty of the European Union (TEU)

the reform of the CAP in 2003, CAP has been divided into two pillars: production support and rural development. The core of the first pillar has been the Single Farm Payment (SFP), which is conditional on compliance with certain environmental standards (EEA, 2006, p. 36), from 2015, this will be complemented by the Green Direct Payment as described below (European Commission, 2013, p. 6). By decoupling the level of direct payments from production, CAP reform may have the effect of reducing the intensity of farming in certain circumstances (Aakkula, Kröger, Kuokkanen, & Vihinen, 2006, p. 4). The second pillar consists of measures to promote rural development, including a range of voluntary agri-environmental schemes which involve farmers being paid to achieve certain environmental goals, such as preserving landscapes, restoring habitats, reducing inputs or following traditional farming practices. Agri-environmental schemes seek 'to integrate the goals of conservation with those of farming by establishing a market relationship with farmers and paying them for providing environmental goods' (Thomas, 2003, p. 205). They have heretofore, been the principal tools for integrating environmental and agricultural policy under the CAP (Hildén et al., 2012, p. 3393).

Following the 2013 reforms (European Commission, 2013), the common agricultural policy has been positioned to address three challenges: Economic, Environmental and Territorial. The environmental challenges have been identified as relating to resource efficiency, soil and water quality and threats to habitats and biodiversity. The reformed CAP comprises three implementation mechanisms for improving the environmental performance of agriculture:

- *Regulatory: Statutory agricultural management requirements, including compliance with good agricultural practice guidelines. Receipt of the single farm payment support is dependent on such compliance.*
- *Mandatory: Green Direct Payment (decoupled from production, paid per hectare), new policy instrument, which will reward /compensate farmers for respecting three obligatory agricultural practices: maintenance of permanent grassland; ecological focus areas; crop diversification. As these practices are compulsory, this should introduce environmentally beneficial practices to most of the utilised agricultural area.*
- *Voluntary: farmers compensated for enrolling in and compiling with voluntary schemes including agri–environmental- climate measures, organic farming, Natura 2000, forestry measures, etc.*

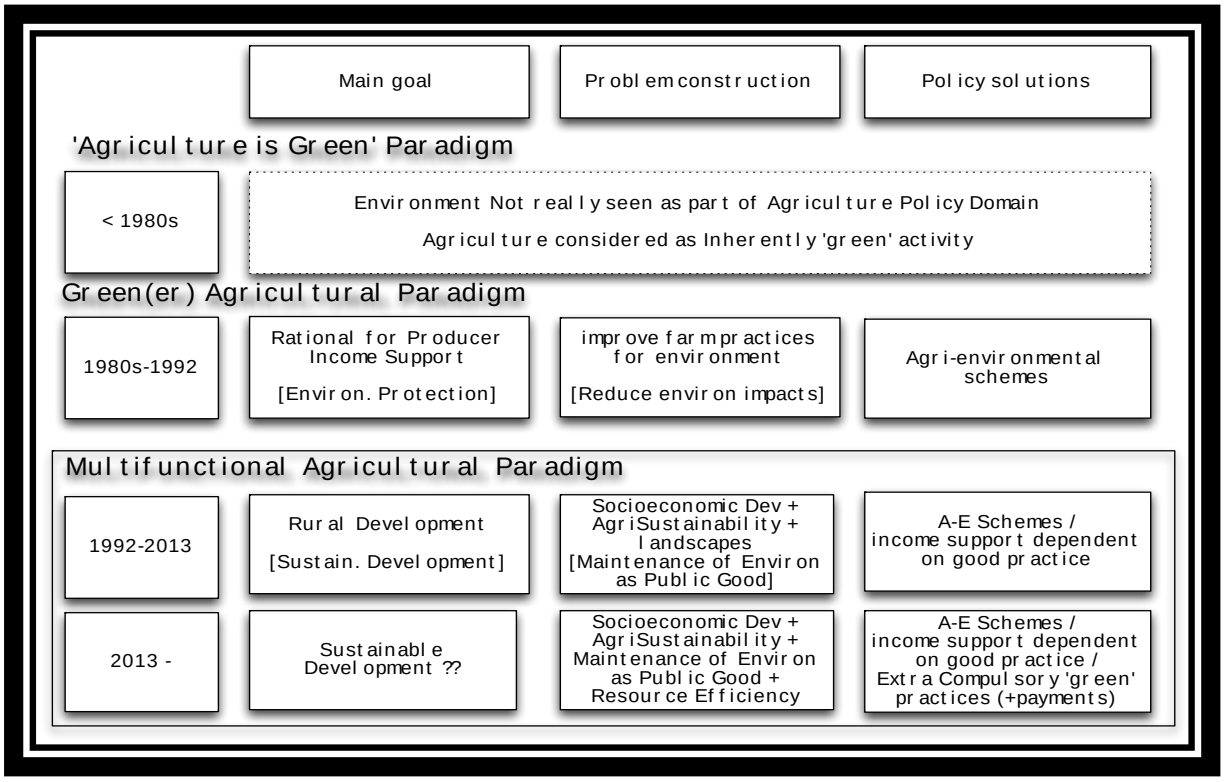
It is important to acknowledge the effect these changes in CAP have had in refining the so-called 'European Model of Agriculture', with a transformative emphasising of environmental protection through linkage of supports to demonstrable environmental compliance and innovative voluntary schemes, including a number which explicitly address climate change[30]. However it should be noted that agricultural EPI depends not only on the policy framework (mainly set by the EU) but on policy implementation, which is in the hands of member states (EEA, 2006, p. 41).

[30] We are grateful to Seamus O'Donohoe, ICOS for bringing this point to our attention

For example, codes of good farming practice, which define compliance, are a competency of member states. These range 'from a fairly limited selection of requirements to a broad coverage of categories of agricultural practice' (EEA, 2006, p. 42). The extent to which effective policy implementation has been achieved in practice therefore varies between states (EEA, 2006, p. 46).

Figure 10 illustrates how the paradigm for policy integration has evolved in the EU agriculture sector from the point, where traditionally it was considered that agricultural and environmental objective were intrinsically aligned to where it is now consider necessary for explicit environmental policy integration (albeit that the drivers may not always be environmental objectives), although the absence of consideration of climate change is noteworthy and in direct contrast to the situation in the energy sector as discussed in the following section.

Figure 10: The evolution of the environmental dimension in EU agriculture policy



3.2.3 EU Energy EPI

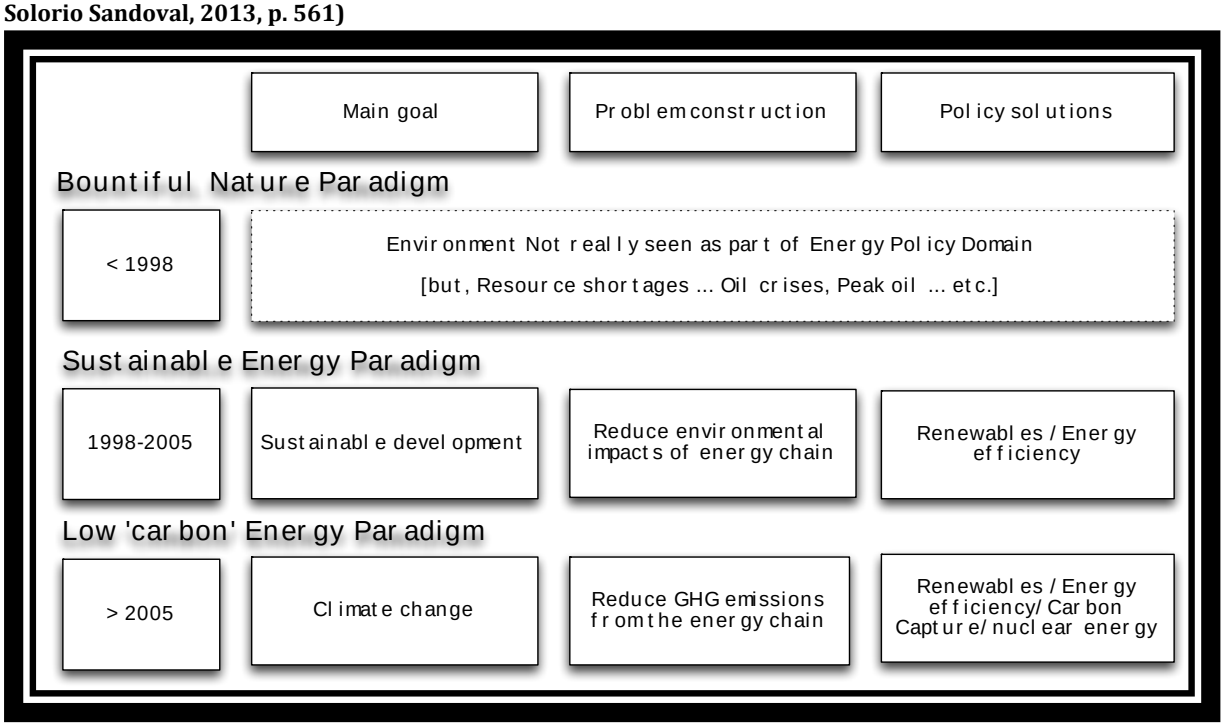
The 1998 Communication from the Commission 'Strengthening environmental integration within Community energy policy', stated '…it was essential to adopt sustainability as a general principal in developing Energy Policy… (European Commission, 1998). This approach placed sustainability as the guiding paradigm for 'greening' energy policy, of which climate change was a subordinate component (Morata & Solorio Sandoval, 2013, p. 556). Engström *et al.* (2008, p. 241) observe that not all environmental concerns receive the same level of attention. By 2000, the focus was beginning to shift with the Commission's green paper on greenhouse gas emissions trading

which began a process which led to the EU emission trading scheme (EU-ETS) (Ellerman & Buchner, 2007, p. 68).

The Spring 2007 European Council acknowledged sustainable development and addressing climate change as integral parts of the EU Policy and called upon the EU and its member states to 'develop a sustainable integrated European climate and energy policy' (CEU, 2007). However it is clear that climate change has replaced sustainable development as the EU energy policy EPI guiding paradigm (Morata & Solorio Sandoval, 2013, p. 258), as illustrated by the so-called '20-20-20' objectives established by the EU Climate and Energy Package: 20% reduction in EU greenhouse gas emissions from 1990 levels; Raising the share of EU energy consumption produced from renewable resources to 20%; 20% improvement in the EU's energy efficiency (European Union, 2008). This emphasis on non-carbon intensive energy, rather than sustainable energy in a broader sense has resulted in nuclear energy making its way back onto the EU's agenda, notwithstanding the issues surrounding the management of waste from the nuclear industry – see for example, the Sustainable Nuclear Initiative included in 2010 Strategic Energy Technology (SET) Plan (European Commission, 2010b, p. 6). Söderberg (2011, p. 541) agrees on the change in emphasis, seeing the emergence in the late 2000s of nuclear power as a 'climate-friendly energy source, which deserves a place within a secure, sustainable environmentally-friendly energy supply'.

The framing of the challenge as obtaining low-carbon energy rather than achieving a sustainable energy system has also led to an emphasis being placed of biofuels, with little consideration of the wider environmental and social implications of such initiatives. Such one-dimensional perspectives ignores non GHG emissions environmental aspect and often leads to unexpected consequences as shown in a case study on Agri-environmental and wood energy policies in rural Finland presented on page 62 of this report.

Figure 11: The evolution of the environmental dimension in EU energy policy (adapted from Morata & Solorio Sandoval, 2013, p. 561)



The above figure presents the EU energy sector counterpart to Figure 10 in the previous sectoral example of agriculture. The policy integration paradigm for energy has notably shifted from one of sustainable development at the turn of the century to the current situation where the climate change agenda has all but captured the 'environmental' dimension of the sector leading to such apparent anomalies as 'sustainable nuclear energy'. The change in narrative from sustainable energy to a low 'carbon' paradigm within energy policy integration is at variance with agriculture policy, where the paradigm is almost the mirror image (notwithstanding some climate-related initiatives in agriculture) *i.e.,* CPI, without consideration other environmental aspects in the energy domain and a truncated EPI with the climate change perspective. This lack of consistency across policy boundaries makes successful environmental policy integration more difficult and may lead to conflicting policy instruments where the domains intersect *e.g.,* biofuels in the case of energy and agriculture.

3.3 Lessons from local sectoral integration in European Regions: Niche level innovation?

Underdal (2013, p. 16) considers the diffusion of policy learning and policy innovation as a process of co-evolution involving the interplay of material, cognitive and normative factors. Learning can be triggered by material consequences or by cognitive and normative ideas. The diffusion of policy innovation tends to occur when there is perceived relevance i.e. where a solution is conditioned by similarity of problems and capacity (*ibid*., p. 19). Governments will often look to self- identified peers for solutions. A second conditioning factor is that the solution is exemplary (effective, efficient, normatively compelling). A third is feasibility, where the usual flow is from 'leaders to laggards'; the former must view themselves in sufficiently similar circumstances to the latter. With this in mind we have summarised the findings of research on

the local implementation of EPI across Europe. Our selection was conditioned by (1) the availability of case studies that evaluate the successes and/or challenges to EPI (2) a geographical clustering of cases *i.e.* Britain and Northern Ireland, the Nordic Countries and the Netherlands, prompted by Underdals's observations.

3.3.1 Britain and Northern Ireland

3.3.1.1 Sustainable Agricultural Landscapes in the UK

Although, there is mixed evidence of the success of agri-environmental schemes (*cf.* Kleijn & Sutherland, 2003; Whittingham, 2006), such voluntary schemes have become the principal policy tools for sustainable landscapes in the UK. This is at least in part due to their popularity with farmers, for whom they provide income support. Dwyer (2013, p. 117) reports the support of non-farming stakeholders and posits that this type of scheme has encouraged the integration of environmental considerations into land management. However, such schemes suffer from a simultaneous over standardisation *i.e.,* choosing from standard prescriptions rather than tailoring measures to suit farms (also noted in Finland by Åkerman, Kaljonen, & Peltola, 2005, p. 605), and a piece-meal farm-by-farm approach leading to a lack of landscape spatial coherence in both the planning of measures and in the measurement of success with resultant landscape fragmentation. Additionally, the perception of local actors as implementers of policy decided elsewhere is seen as a challenge to designing effective integrated policies – Dwyer (2013, p. 182) sees this as a loss of potentially valuable shared learning opportunities. This passive status leads to a poorer relationship with public agencies than would otherwise have been the case and a 'them and us' mentality. This mind-set is also linked to another shortcoming in design of agri-environmental schemes, the belief that everything must be auditable. This results in limiting solutions to simplistic, standardised measures that can easily be measured and tested to the disregard of potentially more effective alternatives that may be more difficult to measure quantitatively *e.g.,* advisory services. A lack of resources can limits agencies' capacity to develop, implement and assess potentially more effective nuanced measures *e.g.,* capturing valuable local and sectoral knowledge, providing actors with high level of advice; requiring skilled appraisal. Dwyer concludes by recommending a framework approach comprising decentralised policy design in partnership with local actors with the detail of policy instruments determined locally within 'communities of practice' wherein those with both expert and lay knowledge and experience work together to achieve predetermined goals.

3.3.1.2 Zero-carbon homes agenda in England

Greenwood (2012, p. 18) found horizontal integration to be lacking in the case of the zero carbon homes initiative in England, giving the example of planning authorities refusal of planning permits for onsite energy solutions such as photovoltaic panels, decisions which conflict with the importance of the technologies for meeting both the renewable energy targets set by local

authorities and in achieving the zero carbon compliance. Optimising the long-term capacity of building energy efficiency sector requires designing policy instruments that 'satisfice' the need of the many stakeholders involved (Dunphy, Morrissey, & MacSweeney, 2013, p. 649). However while, Greenwood (2012, p. 31) notes that stakeholders appreciate opportunities to be involved in the policy process, their contributions can degenerate into interest group lobbying. This presents a great risk that public policy will be captured by incumbent interests (Winskel, Radcliffe, Skea, & Wang, 2014, p. 592), and particularly by larger companies who have greater capacity to shape the agendas of such engagements, for example it is argued that the European Technology Platforms (and similar industry led partnerships) are 'disproportionally shaped by larger companies' (Diedrich, Upham, Levidow, & van den Hove, 2011, p. 937). This influence is especially important in the process leading up to key policy decisions, which determine the impact of the policies and so will be distortive to the market. Greenwood (2012, p. 13) provides a number of examples in the zero-carbon homes study of such key decisions, including perhaps most importantly the specification of key parameters such as (i) the definition of 'zero-carbon', and (ii) the way in which CO_2 emissions are measured.

3.3.1.3 Renewable Energy Deployment in Post Devolution Wales

Although the government of Wales, a devolved region of the UK has a 'constitutional' duty[31] to promote sustainable development, integrating such considerations has been contentious to implement. Stevenson & Richardson (2003, p. 110) report that sectors display significant differences both in policy cultures and in perspectives. The resulting tensions create power struggles wherein the meaning, interpretation and implementation of sustainability is contested and sustainable development is seen as negotiable in comparison to economic issues. They cite the example of wind energy for which there is strong governmental support but substantial difficulties encountered locally at the policy implementation stage, with planning permits in particular being far more difficult to obtain than in other UK regions.

They frame the issue as one where climate policy is losing out to other elements of environmental policies: '… the importance of climate change is often lost in debates dominated by non-governmental stakeholders representing local concerns, and some of the more vocal of the Welsh Assembly Government's key environmental advisers, whose remit is local landscape and habitat protection' – this is a noticeable contrast to the ascendency of climate policy integration shown elsewhere in energy policy discourse. Stevenson & Richardson criticise their perception of a parochial nature shown in some aspects of Welsh administration suggesting that Wales has become an inhospitable environment for large-scale renewable energy project as evident by the Welsh government 'calling in' some wind-farm schemes for determination at a national level even in cases where planning permission has been granted. The scalar tensions

[31] Government of Wales Act 1998

between different levels of governance are also seen as a particular problem in the Welsh context, with 'the effect of national UK policies will ultimately strongly influence the direction of … [energy and spatial development] strategies'.

3.3.1.4 Integrating Land-use Planning and Transportation in Belfast

While sustainable development is often given as a goal in many policy domains and the ultimate goal in land-use planning, it is generally a vague and undefined objective with no elucidation of what is meant or how it is to be achieved. McEldowney, Ryley, Scott, & Smyth (2005, p. 518) comment that although there is consensus on the goal of sustainability at the policy development level such as at the city-scale, it can often be contested at the implementation level *i.e.,* the rhetorical support for sustainability at a general level, is met by reluctance for lifestyle changes or residential environmental changes that might contribute towards sustainability *e.g.,* the policy objective of densification of residential units in Belfast is not shared by existing residents whose locales will be 'densified' or by potential house-buyers (which in turn has led to scepticism by the construction sector). While the land-use planning and transportation is offered a chance for much needed integration in the Northern Ireland Regional Development Strategy and its daughter document the Regional Transport Strategy, McEldowney *et al.* (2005, p. 516) posit the fact that the implementation of individual measure is contingent on the availability of funding represents a flaw, which could lead to partial implementation with knock-on effects for integration. In common with Dwyer (2013) they see the stop-start pattern of policy development and the short-term horizon of the policy lifecycle as retarding the policy development and integration process, albeit they see it through the specific prism of the Northern Ireland political context.

3.3.1.5 Marine litter in Scotland

Hastings and Potts (2013, p. 54) succinctly state success criteria saying EPI must be 'embedded through the policy cycle at multiple levels and must fit within an adaptive and iterative cycle so policy learning is maximised and innovations are brought to bear'. They identify administrative culture and practices as an issue for environmental policy integration and specifically point to dispersal of responsibilities, with respect to addressing marine litter, across agencies and levels of governance and the consequent lack of clarity on competencies, poor communication, vague mandates, and power imbalances. The asymmetric devolution of powers in the UK context adds to this problem. They suggest that reorganisation may be required to these issues and that this presents an opportunity to incorporate the principle of subsidiarity, positing that EPI would benefit from and perhaps should ensuring decisions at made at the lowest possible political and administrative levels. They argue that to prevent EPI being 'lost in the noise' of inter-departmental negotiations there is a need for the development of process based metrics in addition to outcome based measures.

3.3.1.6 Waste management in the UK

Watson, Bulkeley, & Hudson (2008, p. 486) found that vertical integration promoted significant improvement in the environmental performance of municipal waste management in the UK, but that this did not deal with fundamental limitations to horizontal integration at local government. In answering the obvious question: where should the boundaries of EPI lie, they suggest focusing on 'those integration processes that are most effective and most efficient' assuming of course agreement on normative definitions of effectiveness and efficiency which may be contested in the power struggle that accompanies much policy integration. They conclude that the range of approaches required for sustainable waste management indicates that a 'one size fits all' approach is not desired nor is it practical and argue that the idea of a superordinate body to induce EPI may act to limit the vision of sustainability and to reduce diversity of voices involved in the process.

3.3.2 Nordic countries

3.3.2.1 Agri-environmental and wood energy policies in rural Finland

Åkerman, Kaljonen, & Peltola (2005, p. 596) observe that policies aiming to incorporate environmental aspects into agriculture and energy policies in rural Finland have primarily been economic instruments. These instruments aim to change the behaviour of actors through persuasion and offer financial incentives for (policy-maker perceived) more environmentally benign practices. On a general level both policies have been deemed successful at a macro level *i.e.,* 90% of farm units joined agri-environmental schemes leading to a decrease in use of fertilisers; significant increase in use of biofuels, which have overtaken oil to become primary source of energy.

Åkerman *et al.* (2005, p. 602) comment that the outcomes of polices are dependent on the kinds of links that are crated between actors, practices and knowledge and suggest the translation of policy may not be straightforward and that outcomes may not align with policy goals. For example, restrictions placed on timing of animal slurry spreading in Finland – moving it into the already busy springtime – coupled with the dispersed nature of many Finnish farms resulted in the over spreading of slurry on those fields closest to the farmyard with a consequent imbalance in soil nutrient status of the land. Over-looking the context in which the policies will be implemented (*i.e.,* the practical organisation of farming activities in this case) means that the policies not only will not meet their goals, but may lead to even more negative outcomes. Another example of unintended consequence is the wood (biomass) energy policy, although the development of local biomass energy value chains was a policy objective, consideration was not given to alternative translations of the policy through completing production systems. The free market approach used to select suppliers to biomass energy plants has resulted in large non-

local suppliers being able to undercut on price, thus neutralising the socio-economic benefits and arguably reducing the environmental benefits of a more localised supply chains.

3.3.2.2 Waste Management in Sweden

The Swedish national waste policy comprises a growing range of governance approaches that co-exist ranging from state-centric regulatory measures such as taxation and prohibition to new policy types such as process-orientated or objective orientated measures. Nilsson, Eklund, & Tyskeng (2009, p. 15) found that the old-style hierarchal command and control measure to be more effective than the newer modes of governance and suggest that the applications of new policy instruments is inhibited by a lack of supporting structures, normative structures and knowledge systems *i.e.,* their very newness is limiting their success. While this is likely to change over time as the policies instruments mature, the transitory period could result in unintended outcomes, for example they report a gap between local waste management decisions and the intentions of national waste policy leading to a large number of waste incineration projects. This suggests to them that the waste hierarchy – seen by some as a weak instrument because of competing interpretations – may have lost its central role in Swedish waste policy.

3.3.2.3 Environmental policy integration in Swedish bioenergy policy

Söderberg (2011, p. 539) suggests that EPI does not necessarily ensure environmental beneficial outcomes in multi-sector context such as bioenergy, where for example she noted policy instruments supporting forestry cultivation from an energy perspective did not acknowledge interactions with agriculture policy. This was particularly exacerbated following Sweden's entry to the EU during the 1995 enlargement process, which loosened the links between agriculture policy, which became an EU competency, and bioenergy, the responsibility for which moved to the Ministry for Industry. This caused a clash in policy objectives, which Söderberg posits inhibited the cultivated of energy crops for over a decade. She argues successful implementation of EPI requires concrete goals, with measureable metrics, which are coordinated across all relevant sectors and at different scales.

3.3.3 Netherlands

3.3.3.1 Spatial and Urban integration in the Netherlands

Runhaar, Driessen & Soer (2009, p. 417) suggest that spatial planning and environmental aspects often are in conflict in urban practice. For instance, standardised environmental norms may inhibit spatial development *e.g.,* norms suitable for residential areas would be inappropriate and limit development potential in city centres. On the other hand opportunities in the planning process for environmental improvement may be lost by consideration of the environmental at too late a stage. Since the mid 1990s Dutch planners have been given the freedom to localise planning approaches, allowing better integration of spatial planning and protection of the

environment. Weber and Driessen (2010, p. 1131) argue that the Dutch 'political and policy discourses on decentralisation, and area-oriented, flexible policy provided a policy window for EPI.' These efforts have been facilitated in recent years by the development of planning aids to support the formulation of area-specific environmental objectives and norms. These tools tend to be most successful when planners have a degree of freedom for integrating environmental values, *i.e.,* there needs to be some flexibility with regard to planning choices.

3.3.3.2 Mainstreaming Climate Adaptation into Urban Planning in the Netherlands

Uittenbroek, Janssen-Jansen, & Runhaar (2013, p. 408) observed that opportunities for synergies between climate adaptation and other policy objectives do occur and if exploited serve to enhance the process of mainstreaming climate adaptation. However, they also note that certain policy objectives may act as barriers to incorporating adaptation. Uittenbroek *et al.* contrasted the planning relating to two Dutch projects, the results of which supported indicated that performance based decision-making leads to more successful mainstreaming than a more conformist approach.

3.3.4 Reflections on the relation to regulation

All of the cases considered above reflect on the relation (positive or negative) between EPI and regulation. The Porter hypothesis forwards that well-designed regulations will stimulate innovation ultimately resulting in benefits to the firm (Ambec & Barla, 2002, p. 355). Williamson and Lynch-Wood (2012, p. 957) argue there is a need for different types of policy instruments to bring about environmental improvements by both actors which occupy 'beyond compliance' positions and those who may be termed performance laggards. They suggest this may include non-prescriptive approaches to stimulate radical action (strong innovation) in those who are beyond compliance, and more prescriptive approaches to force incremental improvements, building on existing solutions in less proactive actors (weak innovation). Such an approach will mean that front-runners can set the bar high and co-create new norms.

Lafferty (2012b, p. 328), remarks on 'the need for returning to the blessings of law and regulation is in this view totally necessary for overcoming the impasse in sustainable development implementation'. He notes that 'Just as goal directed regulation always has been a feature of democratic governments in times of crisis and threat, so too is it now demonstrably necessary to move the sustainable development agenda'. Pisano *et al.* (2014) point out that all of the international initiatives on sustainability place a very strong emphasis on the role of regulation in the policy mix for addressing the challenges of the 21st century. Steurer (2013) has provided an excellent synopsis of the varieties of regulation in contemporary governance demonstrating the tools available for policy-makers beyond more prosaic 'command and control' approaches. We suggest his article provides a valuable resource for those concerned with designing policies for sustainability.

Table 1: Summary of lessons from EPI case studies

Case Study	*Success*	*Challenge*
Sustainable Agricultural Landscapes in the UK	High level of 'buy-in' among farmers	Farm-by-farm approach leads to landscape fragmentation
Zero-carbon homes agenda in England	Involvement of industry in process	Risk of incumbent actors capturing the agenda and setting key policy parameters.
Renewable Energy Deployment in Post Devolution Wales	Local involvement in decision-making	Local focus has potential to lead to stress local rather than global environmental issues
Integrating Land-use Planning and Transportation in Belfast	Potential for integration suggested by framing of the N. Ireland Regional Transport Strategy as a daughter document of the Regional Development Strategy	Stop-start pattern of policy development and the short-termism inherent in the policy lifecycle
Marine litter in Scotland	The required clarification on competencies presents an opportunity for introduction of subsidiarity principle.	Risk of EPI being 'lost in the noise' of inter-departmental negotiations
Waste management in the UK	Vertical integration facilitated significant environment performance improvement	Limitations to horizontal integration at local government level
Agri-environmental and energy policies in rural Finland	Good uptake of support measures in both policy domains	Lack of necessary links between actors, practices and knowledge resulted in misaligned policies
Waste Management in Sweden	Mix of policy modes utilised	Lack of supporting structures, normative structures and knowledge systems for new policy modes
Environmental policy integration in Swedish bioenergy policy	Requires concrete goals, with measureable metrics for multi-sectoral EPI	Non-alignment of goals of related policy domains *e.g.*, agriculture and energy in the case of bioenergy. [This can be exacerbated by the division of competencies]
Spatial and Urban integration in the Netherlands	Development of innovative planning tools which assist in the integration of environmental aspects in spatial plans	The approach does not provide for reconciliation of scientific inputs or of competing values
Mainstreaming Climate Adaptation into Urban Planning in the Netherlands	Synergies with other policy objectives (if exploited) serve to enhance the process of mainstreaming climate adaptation	Conformist approach taken in some integration attempts reduce

4 Conclusions: Challenges for Ireland

In this final section rather than attempting to arrive at a synthetic conclusion we instead look to the contextual challenges of addressing environmental policy integration and the reframing of sustainability in Ireland. In the case of the later we give a tentative sketch of emergent landscape of policy and research that might act as a resource for future reflection and debate.

4.1 Ireland: A Challenging Environment for Integration?

Post 2008, the arithmetic of contemporary crises has been explored in all sorts of different permutations. It has been called a double/dual crises –unsustainable consumption (climate

change) fuelled by unsustainable debt (financial crisis) (Bina & La Camera, 2011; Tienhaara, 2010), a five dimensional crisis (NESC, 2009, 2014b) a crisis of governance where the future is shaped by an exogenous 'troika' of the IMF, EC, ECB. The international context post 2008 may well make problems even more intractable in the Irish case (Hardiman, 2012, p. 225). Hardiman sees three constraints on the exercise of sovereignty in Ireland and beyond. The first relates to the politics of the Eurozone, which constrains nation states capacities to devise their own solutions. The second relates specifically to the conditionality of the EU-IMF bailout, which limits sovereign policy choice severely. The room for autonomous manoeuvre in light of these constraints is tempered by the recognition that there are potential risks to political legitimacy and political sustainability if austerity goes beyond a tolerable threshold. The third constraint relates to the fact that 'the scope of national governments to make effective sovereign choices for their own citizens is constrained by growing economic interdependencies' (*ibid*., pp. 225-6). The governance of sustainable development, including EPI has to contend with contextual conditions wherein the nature of governance itself is in transition and the future is uncertain.

Sustainable development has helped to accelerate the diffusion of new policy instruments, mechanisms and institutional designs in Ireland. This has been part of a process to negotiate coherence and narrative consistency within the context of a multi-actor, multi-sector, multi-level system of governance for sustainable development within the EU (Mullally, 2012, p. 165). The OECD Environmental Policy Review of Ireland (2010, p. 10) confirms that sustainable development had made some progress up to 2008 as 'governance for sustainable development was consolidated' with Comhar the Sustainable Development Council (SDC) acting as a multi-stakeholder forum providing independent advice to government and also functioning as an important institutional mechanism for *horizontal policy integration*. Although Comhar SDC did not survive retrenchment and austerity its functions have been absorbed by the National Economic and Social Council (NESC). We contend that NESC has a vital role to play both in creating spaces where the co-evolution of knowledge and policy can flourish, and in facilitating a debate on EPI in Ireland through its networks nationally and internationally. The OECD review also notes that mechanisms such as strategic environmental assessment (SEA) and regulatory impact assessment (RIA) have been used to integrate environmental decision making at both micro and macro level[32]. While Meadowcroft and Steurer seem to suggest that RIA is not conducive to EPI, other analyses actually highlight the Irish approach as an example of good practice in relation to integrating the environment (Jacob, Weiland, Ferretti, Wasche, & Chodorowska, 2011).

Successive analyses have highlighted the underdeveloped nature of the vertical dimension of governance in the context of sustainable development in Ireland (Berger & Steurer, 2008; Gjoski

[32] Other assessments of SEA in Ireland are also useful resources see d'Auria & Ó Cinnéide (2009) for application at a local level and EPA (2012) for an overall review of SEA.

et al., 2010; Mullally, Henry, Motherway, Murphy, & Weyman, 2009; NESC, 2010; Niestroy, 2005). The integrative dimension of governance for sustainable development is regarded as being particularly problematic in terms of *vertical integration* with no intensive coordination between the national and subnational [sustainable] development processes (NESC 2010 p140). There is also a very strong impression that poorly articulated vertical linkages lower the expectations about what can be achieved (Mullally et al 2009).

Although the idea of *diagonal environmental policy integration* has not featured to any great extent in the Irish discourse on sustainability, discussions of poverty and social inclusion (Ó Riordáin, 2006) public sector reform (Ó Riordáin, 2012), local government reform (Ó Riordáin, 2013) and new regional governance in Ireland (Ó Riordáin & van Egeraat, 2013) have consistently stressed the need to focus on the challenges of diagonal policy integration[33].

4.2 Reframing Sustainability

In reviewing the state play for EPI we have seen the growing significance of the debate on sustainability transitions. While it is beyond our scope here to give a comprehensive assessment of its impact on Ireland we can see tentative indications of the reframing of the sustainability discourse on the policy side and on the academic side that could provide a resource for future research[34]. 'Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal' was adopted by the Irish Government in December 2008. It sets out a set of actions to reorganise the economy over a five-year period (2009-2014) and to secure the prosperity of current and future generations (Berger and Gjokski 2010: 14). Smart economic growth includes green growth: a key feature of smart growth is building on the innovation or 'ideas' component of the economy through the utilisation of human capital, green growth in this strategy implicates a shift from fossil fuel based energy production to renewable energy and increased energy efficiency to reduce demand. The 'new engines of growth' are, therefore, investments in renewable energy, new technologies and innovation, combining higher productivity and higher energy efficiency through various sectors (Berger and Gjokski 2010: 14). The current government has similarly integrated these discourses into narratives of recovery. In the preface to 'Our Sustainable Future: A Framework for Sustainable Development in Ireland', the Taoiseach, emphasises the need to look beyond the current economic crisis: 'forging a vision of how we can transition Ireland to a resource efficient, low carbon and climate resilient future' (Government of Ireland 2012: 1). In policy terms there is an increasing focus on transitions in different policy sectors by key institutions and agencies: for example NESC have placed particular emphasis on energy transitions in their work on climate change (Moore 2012) and wind energy (NESC 2014),

[33] Ó Riordáin (2006, p. 25) signals that his understanding is rooted in the Dutch approach to diagonal coordination primarily in spatial planning and in complex and urgent strategic projects.).
[34] This is the subject of an extensive reflection in NESC 2012.

(particularly in the report on Ireland commissioned from, SLR published in 2014). Other initiatives include the Teagasc and RDS lecture series 2012-2014 focused on 'preparations for a transition towards more efficient and sustainable food consumption and production'[35]. The Sustainable Energy Authority of Ireland (SEAI) has a key role in terms of energy transitions including its focus on smart grids innovation.

To date the transitions for sustainability perspective has been applied only to a limited extent in Irish research, but it is gathering momentum in the context of climate change, sustainable energy systems/ smart grids (Mullally and Byrne 2014), renewable electricity (Mullally and Murphy 2008), spatial planning (Morrissey 2014), sustainable community (Barry and Quilley 2009), transitions in consumption (Davis 2014), social innovation (Davis and Mullin 2011), sustainable consumption (Pape and Fahy 2010, Pape *et al.* 2011) and sustainable regional development (Tovey, Bruckmeier, and Mooney, Robert 2009). Most of this research adopts the elements of the multi-level perspective on transitions and integrates discussions of horizontal and vertical integration to a greater or lesser degree. In the specific case of CPI there are a number of reports that deal specifically with the challenge of climate adaptation that explicitly use the HEPI-VEPI framework for analysis (Desmond and Shine 2011; McGloughlin and Sweeney 2012; McGloughlin and Sweeney 2011; Sweeney *et al.* 2013).

There is very little evidence as of yet of a debate on 'transitions management' taking root. The Draft Heads of Climate Action and Low Carbon Development Bill[36] gives centrality to the concept of transition with an 'Annual Transition Report' which is envisaged to report on progress on 'transition to a low carbon, climate resilient and environmentally sustainable economy in the period up to and including the year 2050' (DECLG, 2013). The emphasis is on the governing and reporting mechanism by which the government shall delegate and monitor transition; the mechanism by which transition shall be accomplished is not specified[37]. We expect that addressing this question might well provide a space for the sharing of knowledge between science and policy in the very near future.

[35] http://www.teagasc.ie/events/rds-lecture-series/about.asp
[36] See Convery (2013)
[37] We are grateful to Fionn Rogan for bringing this point to our attention.

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Appendices

Appendix I: NESC Brief for State of Play Review

As part of NESC's sustainability research and particular focus on the integration of environmental, economic and social policy, we now require a cogent and coherent review of the literature to support our further research. This work will provide an up-to-date review of the Environmental Policy Integration (EPI) or environmental mainstreaming literature in both academic and policy debates. It will provide an overview of the (i) theory and conceptual development; (ii) methodologies outlined and (iii) provide useful examples of current applications in policy across Europe and internationally.

By environmental policy integration we refer to 'moving of environmental issues from the periphery to the centre of decision-making, whereby environmental issues are reflected in the very design and substance of sectoral policies' (EEA, 2005: 12). Debates on this concept exist within academic and policy-making circles but it is not readily digestible for its relevance to Irish policy development and practice. This review would provide a fresh and cross-cutting critique of these current debates, with an eye on what might be useful for an Irish context.

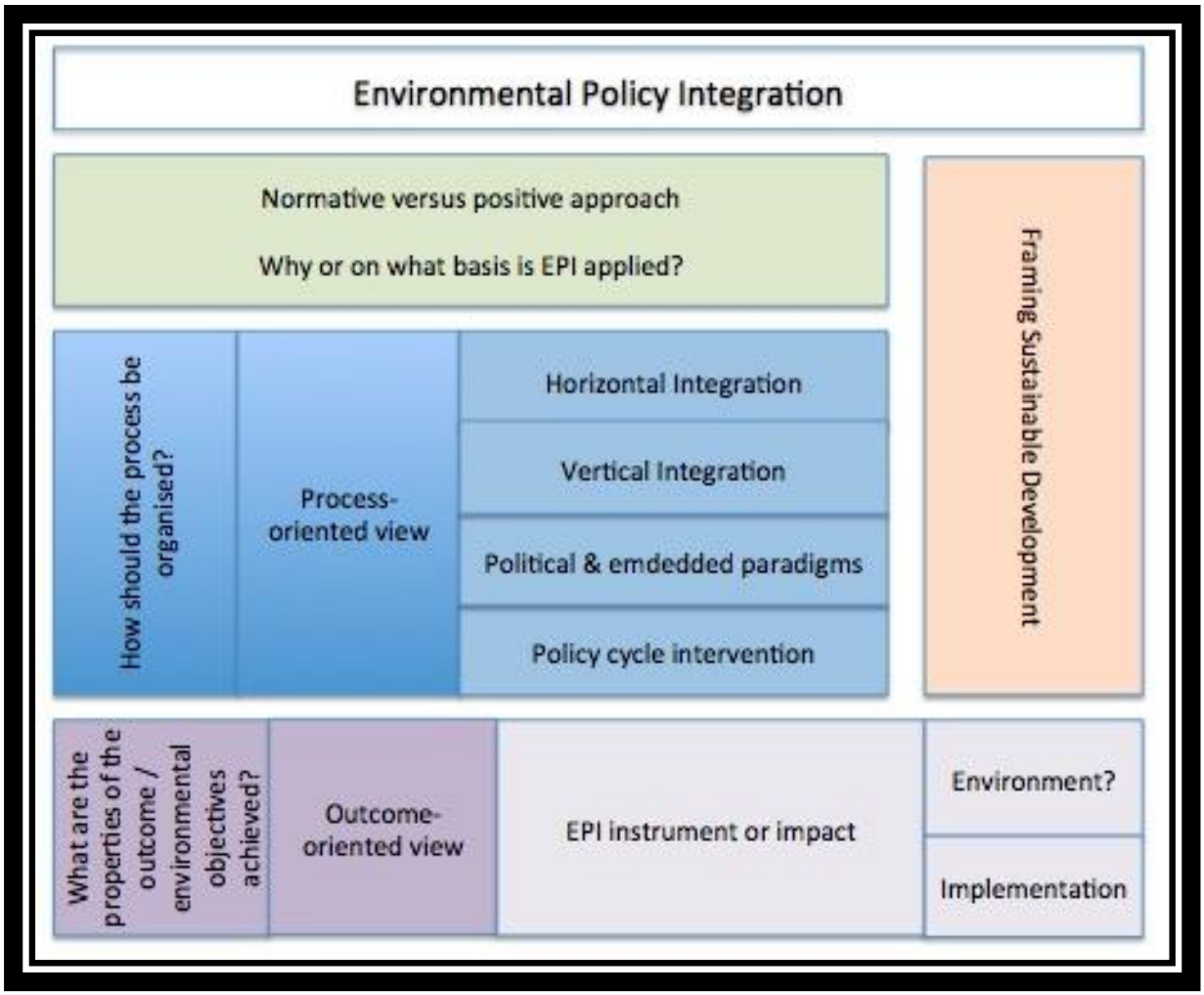
We are particularly interested in identifying areas/examples where environmental mainstreaming and policy integration is live in the policy context *i.e.,* where theory meets practice. For example, where it is coming into the literature on transitions, particular jurisdictions such as Sweden, or specific policy areas such as resource efficiency or climate change (just by way of example).

We would welcome an analysis of the value of these current (and recent) debates for the Irish context and to shape NESC's work in this area. One view is that EPI is in its early stages across Europe, explaining why it is so challenging to achieve, another is that it is difficult because it forces us to make choices (Owens, 2006).[38] If the latter is the case, does the EPI framework provide us with the key tools for policy makers or is it at risk of being used rhetorically without having the 'bite' to examine 'wicked' problems such as climate change or aspects of sustainable development. Is it the case that 'in terms of everyday practices, 'policy integration' is complex and contingent, and there are few 'best practices' that can be easily shared between jurisdictions' (Jordan and Lenschow, 2010)[39]. While a full discussion of its potential for Ireland is outside the reach of this review, some commentary and insights would be welcome.

[38] Owens, S. (2007) Forword, in Nilsson and Eckerberg (Eds.) *Environmental Policy Integration in Practice: Shaping Institutions for Learning*. London: Earthscan.
[39] Jordan, A. and Lenschow, A. (2010) Environmental Policy Integration: A State of the Art Review, *Environmental Policy and Governance*, 20, 147-158.

Appendix II: EPI theoretical constructs

Figure 12: Graphic mapping of EPI theoretical constructs (adapted from Endl & Berger, 2014)



Endl and Berger (2014) have helpfully mapped the theoretical and conceptual debates visually. For our purposes we have amended two of the categories in the right-hand cells. In the original, they use the category 'The Spin on Sustainable Development' which we suggest is better understood as 'Framing Sustainable Development' (including re-framing sustainable development). We have also added a question mark to the 'Environment' cell to highlight the epistemological and practical difficulties of causality between objectives, institutions, instruments and implementation, which recurs through much of the literature.

Cleaner Production Promotion Unit

Established in 1991, the Cleaner Production Promotion Unit (CPPU) is a research unit of the School of Engineering, University College Cork. CPPU conducts research and provides advice, education and training to promote sustainable production and encourage sustainable consumption. Research thematic areas include: Sustainable Production; Human Dimension of the Built Environment; Governance for Sustainability; and Sustainable Communities.

Further information may be found on: http://www.ucc.ie/cppu

Sustainability in Society

The Environmental Citizenship Research Priority Area: Sustainability in Society was created early in 2011 as part of a UCC strategic research initiative One of the key objectives of this initiative is to encourage dialogue across disciplinary boundaries - including the natural and social sciences – and to work toward building a platform of collaborative research around issues of sustainability and related 'science and society' concerns

Further information may be found on: http://www.ucc.ie/en/sustainabilityinsociety/

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