**Policy Diffusion and Environmental Pioneership:
Insights for Transatlantic Cooperation fostering Biodiversity and Biosafety?**

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1   Introduction

How can the US, California and the EU enhance transatlantic cooperation to foster biodiversity protection and to manage biosafety? What are the opportunities for and the barriers to cooperation? This paper proposes a set of answers to these questions by combining insights from policy diffusion literature with some analytical considerations about the capacity of the US, California and the EU to introduce ambitious environmental policy. Policy diffusion is an important component of transatlantic relations. Informal diffusion channels between the European Union, the United States can provide the basis for a number of methods for transatlantic cooperation in environmental policy. Furthermore, in their history the US, California and the EU have demonstrated the ability to enact cutting-edge environmental policy that had an influence beyond their own borders. Understanding the dynamics and parameters shaping their capacity for environmental policy-making provides a key to understanding the opportunities for and barriers to transatlantic cooperation on biodiversity and biosafety. Combining the two aspects of policy diffusion and domestic environmental policy-making, this paper proposes a set of considerations about opportunities and barriers for transatlantic cooperation.

This paper focuses on the US, California and the EU because they are considered very important actors in transatlantic cooperation. Since the early 1990s, the EU and the US adopted a number of statements and guidelines cumulating in the creation of the Transatlantic Economic Council (TEC). In many policy areas, the EU is the most important counterpart to the US. California plays an important role in environmental policy. It is considered one of the driving forces for environmental protection policy within the US and engages in policy cooperation with foreign countries. Therefore it is an important political entity when analysing transatlantic cooperation. The US, California and the EU possess the capacity to introduce ambitious policy that has an influence beyond their borders. In the past or currently, they introduced ambitious environmental policy, which subsequently triggered the introduction of similarly high protection standards in many other countries and political entities[1]. This capacity is elaborated further in this paper especially with regard to biodiversity and biosafety.

Policy diffusion describes a set of informal channels through which policy can be transferred across the Atlantic and around the globe. This contrasts with formal channels of policy-making such as the negotiation of legally binding treaties and trade sanctions. (Tews and Busch 2001) Transatlantic regulatory cooperation is largely based on informal governance mechanisms. (Schreurs, Selin and VanDeveer 2009: 12-3) Therefore, the concept of policy diffusion can provide insights into the different ways in which policy on both sides of the Atlantic can influence each other and ideally how collaboration and policy convergence between Europe and the US can take place. Informal activities such as the exchange of experiences and data, but also the tight interdependence between the European and American economies can lead to convergence of policy approaches to biodiversity protection and biosafety. If European and American policy approaches converge, they can increase their global influence.

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[1] An illustrative example of Californian environmental pioneership is its legislation on car emission standards, which set worldwide the highest standards at the time. The US federal level followed the Californian example in 1965 by enacting the Motor Vehicle Air Pollution Control Act. These strict standards were then introduced by other countries and political entities such as the EU, Japan and Korea. (Vogel 1997: 561-2) An example for EU pioneership is its Directive on the restriction of hazardous substances in electrical and electronic equipment (RoHS), which has diffused to political entities such as California, China and Korea. (Yu, Welford and Hills 2006: 289)

This paper mainly discusses analytical considerations about informal policy cooperation and environmental policy-making that can help understanding transatlantic cooperation on biodiversity and biosafety. Section two of this paper provides a brief outline of the environmental policy competences of the US, California and the EU. The third part addresses policy diffusion and describes the channels through which informal policy transfers between the US, California and the EU can take place. It examines the capacity of each of these jurisdictions to be involved in these channels. Section four analyses the capacity of political entities to introduce ambitious environmental policy. These analytical parameters are applied to the US, California and the EU. Section five discusses the lessons that could be drawn from the analysis of diffusion channels and domestic policy-making for transatlantic cooperation on biodiversity and biosafety.

2   Environmental Policy Competences

To be able to get involved in and to contribute to transatlantic cooperation on biosafety and biodiversity policy, the US, California and the EU need the legal competence to act on environmental policy domestically and to interact with external jurisdictions. This aspect is shortly discussed below because the EU and California are no nation states for which this competence could be assumed. The EU is a *sui generis* entity that goes beyond an intergovernmental organisation but falls short of being a federal state. (Vogler 1999: 27) California is a constituent part of a federal state. The US is a nation state with a federal structure. Hence, the three entities operate in different systemic settings but all three have significant competences in environmental policy and could be active players on domestic and transatlantic policy matters.

The EU has acquired important competences in environmental policy. It influences and shapes policy in its Member States to a great extent. Environmental protection is incorporated in the EC Treaty (articles 174-6) and forms a legal basis for Community action. Most EU environmental legislation takes the form of Directives, which do not take direct effect in Member States but have to be transposed into national legislation. Thus, the Member States still have some scope to shape policy at the national level. But they also have influence as part of the Council of Ministers in the EU legislative process. (Weale et. al. 2003)

The EU also possesses significant competences to represent European interests in environmental matters externally. The involvement of the European Community alongside the Member States is part of the EC Treaty. In areas related to exclusive Community competences such as trade and fisheries, the Commission has the exclusive competence to represent the EU. But most environmental areas are concurrent competences and involve mixed agreements. (Bretherton and Vogler 2006: 89-110, Delreux 2006)

In the US, both the federal and the state level can have significant competences for environmental policy-making. In cases of federal inaction, the states can assume far-reaching competences. Some of the most stringent environmental policy measures in the US came from the state level and California is considered (one of) the most progressive state in that regard. (Kendall 2004: 12) Prior to the 1960s, state and local authorities were the main environmental policy-maker. In the 1970s Congress set minimum federal standards on a variety of environmental issues based on the Constitution's Commerce Clause (article 1, section 8 [3]), which gives the federal level the competence for regulating interstate commerce. Soon, the federal level dominated environmental policy-making. In the 1990s, this division of competences swung back to the states. The states filled in a gap that emerged due to decreasing

federal activities. (Fitzgerald 1996: 21-36, Kelemen 2004: 54-77, Kraemer and Schreurs 2007)

The US federal level has the prerogative to sign binding international agreements. However, state activities influencing foreign affairs are not entirely prohibited. States can enter informal international agreements such as memorandums of understanding, non-binding resolutions and joint declarations. In order to be unconstitutional, state action must show clear conflict between state law and federal foreign policy and this conflict must have more than an incidental effect on foreign affairs. Hence, California can make use of the option of informal agreements and sign non-binding promises with other jurisdictions to pursue mutual aims and objectives. Given the voluntary character and the internal aim of the policy measure, it would most likely not infringe federal foreign policy. (Hioureas and Cain 2008)

All three entities, the US, California and the EU, have significant legal competences for environmental policy-making and to engage in interaction with external entities. They can potentially play an important role in transatlantic cooperation on biodiversity protection and biosafety.

3   Policy Diffusion Channels

Based on the concept of policy diffusion, the following section outlines a number of channels through which policy can be transferred from one political entity to another. It develops a set of external prerequisites that a jurisdiction would have to exhibit in order to trigger policy diffusion through the respective channels. Based on these prerequisites, the capacity of the US, California and the EU to trigger policy diffusion is discussed. This provides some insights into understanding the opportunities and limits of these political entities to shape informal transatlantic cooperation.

Policy diffusion is defined as a set of voluntary policy transfers from one political entity to another[2]. Policy 'transfer' refers to a single case of transmission of a policy from one entity to another and 'diffusion' refers to the spread of policy from one pioneer entity to a larger number of entities – ideally spreading to a maximum of entities. (Joergens 2004, Busch and Joergens 2005, Simmons and Elkins 2004.) The focus of this analysis is put on informal processes as opposed to the broader definition applied by some scholars that uses policy diffusion as the overarching term for all ways in which policy spreads internationally, including international agreements and coercive measures. (See for example Dolowitz 2000, Meseguer 2005, Stone 2000.)

Policy pioneership is defined as the incident in which a political entity enacts ambitious and innovative environmental policy that has not been introduced elsewhere before. A policy pioneer sets environmental protection standards that are higher than in the rest of the world or introduces new and innovative approaches to dealing with an environmental problem. The focus of the analysis in this section is on policy pioneership because this generates insights into the capacity of the US, California and the EU to be able to proactively drive transatlantic cooperation for biodiversity conservation and biosafety management.

Policy can be diffused through a variety of different channels that link a pioneer to the political entities that take over the respective policy. Diffusion can occur through one or a combination of different channels. Increasing international integration and

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[2] In most academic studies, policy diffusion is applied to nation states. (Holzinger, Joergens and Knill 2007: 13) However, other political entities with regulative power could equally be source and target of policy diffusion. This could be a sub-national state that is part of a federal state such as California or a supra- / international entity such as the European Union. Therefore, this paper refers to political entities instead of countries.

globalisation leads to increased economic and political interdependence between different political entities. (Rosenau 1999: 291-2) It also leads to growing interaction and an increase in communication channels between different actors through the extension of public and private networks and international organisations. Based on these observations, policy diffusion could be classified in interdependence-based and interaction-based categories. Interdependent markets can transmit requirements and the movement of businesses and people can lead to policy competition. Transnational communication, interaction and exchange of information can lead to learning, symbolic emulation, norm-based activities. (Holzinger, Joergens and Knill 2007: 24-8)

The channels are a necessary but not sufficient conditions for policy diffusion to occur. The transfer and diffusion of a policy does not only depend on the existence of one or a number of diffusion channels but also on the domestic setting in the political entity that takes over the pioneer policy. Despite the existence of one or many diffusion channels a political entity could decide not to act and not to introduce policy inspired by pioneer activities.

3.1   Policy Competition and Economic Interdependence

Policy Competition

Policy competition is based on the assumption that policy measures in one political entity could entail implications for another entity. (Brooks 2007: 702-3) Policy in one entity could create favourable and attractive conditions for businesses and persons. This could provide an incentive for a political entity to change its policy in reaction to the other entity's policy. A case in which the lowering of policy requirements and taxes leads to the lowering of the same parameters in other regions is generally referred to as 'race to the bottom'. However, a 'race to the top' could be another possible scenario. Benefits of a policy that lead to more favourable business conditions or better quality of life could make political entities engage in a policy competition towards higher standards. (Porter and van der Linde 1995, Jaenicke and Jacob 2004, Lazer 2001)

Policy-makers generally have an interest in ensuring their domestic industry's competitiveness. They could want to prepare their domestic industry for international competition and for the export of products and services. This could be an incentive to introduce policy measures similar to the pioneer policy. The response can be legislation or voluntary measures such as awareness-raising and industry codes of conduct. Moreover, business can put pressure on national governments to adopt the high standards set by another political entity. They can try to avoid loosing out on competition in markets where lower requirements apply. By lobbying for higher environmental standards, a level playing field with other domestic producers would be created. Companies that complied at an early stage with pioneer policy would then have a competitive advantage because they are well prepared for compliance and could export their knowledge and technologies. (Vogel 1997: 561-3, Porter and van der Linde 1995, Joergens 2004: 252-4) This channel is especially relevant in highly globalised sectors with significant supply chain linkages and in cases in which the pioneer has a significantly big market for the product or service that it sets standards for. When products marketed on the pioneer's market are produced outside its territory, its policy can influence production practices in political entities beyond its borders. Hence, economic interdependence resulting from globalisation and strong trade links can hence provide an influential channel for policy diffusion.

The capacity of the US, California and the EU to trigger policy diffusion processes through the policy competition channel is high. For an entity's policy to diffuse through the policy competition channel, the respective pioneer has to be open to flows of products, businesses and/or persons. Though trade and movements of

business and persons does not have to be entirely free, the pioneer has to exhibit openness to attract persons and businesses that can settle on its territory. The US, California and the EU display a high degree of openness to movements of businesses and persons and largely fulfil the prerequisites for diffusion through the policy competition channels. They maintain high degrees of free trade relations with a large number of political entities. They are members of the WTO – the EU and the US are direct members and California as part of the US.

Economic Interdependence

Economic interdependence could incite political entities to introduce policy similar to the pioneer policy in order to ensure its domestic business' competitiveness as part of a global supply chain. Policy could diffuse through economic activities without the explicit involvement and action of policy-makers. Policy requirements are transferred through international product and service flows. For multinational companies it can be economically viable to take on the requirements of the market with the highest standards and apply them to their global production in order to avoid transaction costs. One single supply chain and production method could bring economies of scale and simplify procedures. (Vogel 1997) If multinational companies with their vast network of suppliers introduce high environmental requirements in all their operations, even in locations where there is no legal obligations to do so, they could have a tremendous impact.

For a political entity to have an impact through the economic interdependence channel, its economy needs to have some clout. If a very small entity introduces extremely high product or service standards it risks that no company is willing to produce these products since the sales figures would be too low to justify the investment in compliance. A very big market economy, on the contrary, could promise high sales figures and profits to justify compliance investments. This would be the basis for triggering diffusion through this channel.

The US and the EU appear to have a larger capacity to pioneer policy diffusion through economic interdependence than California because with regard to this channel the size of the market plays a decisive role. The US, California and the EU have globally interdependent markets with high export and import activities as well as international supply chains. For California the trade relations with other states of the US are very important. Inner-US movements of goods, people and business are highly developed and the interdependence and competition is high. But trade relations and interdependence with the rest of the world are also well developed. California' export shipments of merchandise in 2007 amounted to $134.3 billion and it exported to 222 foreign destinations. (US Department of Commerce) The EU is the largest trading block in the world with a high degree of mobility, especially of business. Its exports of merchandise in 2007 totalled $1,697.746 billion and its imports in the same year were worth $1,952.001 billion. (Eurostat) The US is also one of the biggest trading blocks with an equally high degree of mobility. Its exports in merchandise in 2007 amounted to $1,162.479 billion. (WTO) The EU is an entity of over 490 million consumers, the US comprises approximately 300 million inhabitants and California only counts about 36 million people. The EU and US markets are bigger and therefore in most areas more attractive for business than California. If the EU and US markets set specific requirements for products, services or even certain production methods the incentive and profitability for business to change their operations accordingly is high. This can trigger the mechanism in which third entities react to this development. Hence, with regard to the economic interdependence channel, the US and the EU are in a better position than California whose market is also interwoven in the transatlantic and global economy but its pioneering capacity is less developed than the capacity of the US and the EU.

3.2 Learning

Political entities can learn from the experience of a policy pioneer in their search for suitable and efficient solutions to similar problems. Policy learning reduces costs and uncertainties about the success of a policy. It is easier and more efficient to assess and take over experiences that others have made than to invent and design a completely new solution. Learning from other political entities could be an efficient alternative for political entities with limited resources. A political entity could obtain studies and information concerning the policy measure in question that have been conducted by the pioneer entity. (Tews and Busch 2001: 180, Dolowitz 2000: 13) The higher the irreversible political and economic implications of adopting a policy, the more decision-makers are assumed to rely on solid information and data to minimise the investment risks. (Brooks 2007: 705) If the policy in place in another political entity has already demonstrated that it addresses a problem effectively, decision-makers are provided with a powerful argument in favour of doing likewise. With a growing number of entities adopting a policy, uncertainties about impact and efficiency decrease. This makes the adoption of the policy by the remaining political entities less risky. Hence, learning helps decision-makers design and assess policy options in an effective manner.

The availability and accessibility of information about a pioneer policy and the interaction between political entities are key prerequisite for learning. Some political entities send delegations abroad to countries with innovative and advanced policies with the specific aim of learning from those counties' experiences. Hence, the active provision of relevant information can be an important element supporting policy diffusion via the learning channel. (Joergens 2004: 252)

The US and the EU have moderately higher capacity to be at the source of learning processes than California because they are more visible and they have more interaction opportunities. The US, California and the EU maintain bilateral and multilateral contacts with a number of countries and other actors. Policy from the three entities regularly features in reports, the media and policy discussions in general. However, the US' and the EU's formal external representation is much better developed than California's. The EU maintains over 120 delegations and offices around the world. These offices disseminate information about the EU and maintain relationships with the host country. Furthermore, the EU works closely together with its Member States' embassies and representations abroad. (European Commission) This multiplies the possibilities for dissemination of information about EU environmental policy significantly. The US has almost 300 embassies, consulates and diplomatic missions. (US Department of State) With regard to being at the source of the learning channel, the US and the EU seem to posses more venues and contact points abroad that could promote their environmental policy than California. California is externally represented by the US embassies but these do not necessarily promote Californian issues since they are federal offices representing the whole country.

The US, California and the EU engage in regular meetings with representatives from other political entities to discuss policy issues of common concern. California's Governor Schwarzenegger meets regularly with foreign politicians, such as Germany's foreign minister Steinmeier in summer 2007, to talk about cooperation on environmental issues. On 31 July 2006, Governor Schwarzenegger and the UK Prime Minister Tony Blair signed an agreement to collaborate on climate change and clean energy. "California, after all, is like a nation state, and when we act the world takes notice and it has a tremendous impact.", Schwarzenegger said in his speech after signing the agreement. California seeks to show leadership and engages in meetings and hortatory agreement with foreign policy-makers. In these areas its capacity to be at the source of policy diffusion through learning is high. However, as

soon as the US federal level enters the particular policy field, it could pre-empt Californian policy and constrain it from progressing further. (Kysar and Meyler 2008)

The US and the EU appear to have more institutionalised structures and a larger number of meetings with foreign decision-makers. The EU maintains regular summits with major states such as the US and Russia but also with regional organisations such as the African Union and ASEAN. The US engages in similar regular meetings as well. These external contacts of the EU and the US appear more institutionalised and of a much broader scope than California's. Nevertheless, in policy areas in which California has taken the pioneer role within the US, it has the capacity to build up significant external contacts and interactions. But considering the ad hoc nature of Californian 'foreign relations', it is deemed that the US and the EU with their institutionalised structures of external contacts on a broader scope of issues have a slightly higher capacity for potential learning processes while underlining the nevertheless significant capacity of California.

3.3   Symbolic Emulation and Norm-based Activities

Symbolic Emulation

Symbolic emulation is based on the following of a respected and trusted example and on considerations about a political entity's own legitimacy in the international arena. As opposed to learning processes, emulation does not entail enhanced comprehension and in-depth analysis of policy experiences in another political entity. It rather involves following international trends. Decision-makers could decide to emulate policy that stems from an entity of high status and reputation. The respective policy is then considered to be a good and suitable solution without deeper own assessment. Also, legitimacy considerations can be a motivation for introducing a policy originating in another political entity. Particularly, once a policy has already spread to a significant number of political entities, other decision-makers may consider following this trend for symbolic reasonsPolitical entities could introduce the respective policy in order to boost their own image, reputation and credibility in the international community and to avoid being considered a laggard. (Meseguer 2006b: 172, Brooks 2007: 704, Tews, Busch and Joergens 2003: 572-5, Drezner 2001: 57)

A precondition for activating the symbolic emulation channel is high status, credibility and good reputation as policy-maker of the policy pioneer. This could be gained through constructive cooperation on the international scene and ambitious domestic policy.

It is difficult to assess based on a literature review, but it appears that both, the EU and California, are respected internationally as policy-makers of high standard policy. (Vogler 1999: 43) In environmental matters, the US became internationally and domestically less active with regard to pushing for ambitious policy in the past decades. Considering international interaction, the EU has a greater degree of involvement in international organisations than California. It is signatory to over 30 major multilateral environmental agreements and well integrated, and arguably respected, on the international scene. High commitments and leadership in international negotiations can contribute to the manufacture of the EU's credibility and reputation. The US has lost its reputation as maker of ambitious environmental policy due to its inactivity in the past years and due to its failure to ratify major international agreements such as the Kyoto Protocol and the Basel Convention. But the recent changes in the federal government and Congress indicate that the US will again increase its involvement in international environmental governance and also in domestic environmental policy-making. For example in the area of public lands protection, the Bush administration decided in 2003 to authorise the US Bureau of Land Management to eliminate any further wilderness designation of public lands under its management. (ENS 24 April 2003) On 30 March 2009, President Obama

signed the Public Lands Management Act that includes 164 separate bills and will protect two million acres of wilderness and one thousand miles of river. (Reuters 30 March 2009, ENDS 25 March 2009) This demonstrated a clear change toward increased support for ambitious biodiversity policy. On certain policy issues, California also shows international presence. For example, Californian Secretary for Environmental Protection, Linda S. Adam, attended the United Nations climate change conference in Poznan, Poland in December 2008. However, California's involvement seems to be restricted a limited number of issues and to a lesser degree than the US and the EU. The higher involvement and interaction in international meetings could give the EU an advantage over California with regard to being the source of symbolic emulation. The US appears to be reaching a capacity similar to the EU since it has the same access to international organisations and negotiations and given its recent resurgence in domestic and international environmental policy-making.

Norm-based Activities

Political entities could also act in response to internationally evolved and commonly accepted norms such as the recognition of women's suffrage. Norms are defined as the "standard of appropriate behaviour for actors with a given identity". (Finnemore and Sikkink 1998: 891) These commonly shared norms occur through the increasing interaction at the international level, which could lead to a degree of shared socialisation. This could result in common understanding of many issues and the development of commonly agreed norms. Political actors that share the same norms are likely to assess situations and problems in a similar way. Therefore, they are inclined to consider the same kinds of policy solutions to a given problem. (Finnemore and Sikkink 1998: 894-909) This could enhance the diffusion of policy since decision-makers that share certain norms as the basis for their policy activities could be inclined to take over each other's policy ideas.

For the norm-based activities channel the pioneer's interaction at the international level is crucial. Norm-based diffusion can occur either because both, the pioneer and the follower accept the same previously established international norms or because the pioneer actively shaped the international norm with its new policy.

The US, California and the EU appear to be equally capable to trigger diffusion on the basis of existing international norms. However, the US and the EU seem to have a greater capacity to shape international norms than California. The US, California and the EU respond to international norms and integrate them in their domestic policy. However, to be able to shape international norms active participation in international affairs is required. It appears that the US and the EU have more access to international organisations and policy-making. In the environmental policy field, the US and the EU participate in all important international meetings. The EU is signatory to all major multilateral environmental agreements. The US has signed but did not ratify a number of international agreements. California is generally represented by the federal US government, which does not necessarily represent the same policy paradigms. Hence, in cases in which diffusion occurs on the basis of existing international norms the US, California and the EU seem to be on equal footing. When it comes to shaping international norms the US and the EU appear to have more opportunities and access to relevant fora and therefore to have an advantage over California. However, in recent years the EU has played a more pro-active role in many international fora than the US. Hence, the EU has used its capacity to a greater degree than the US.

4 Domestic Capacity for Ambitious Environmental Policy-Making

To be able to drive transatlantic cooperation on biodiversity and biosafety policy through one or a number of the diffusion channels, the US, California and the EU need to be able to introduce innovative and cutting-edge environmental policy that introduces a high level of environmental protection. This focus on the ability to introduce ambitious and innovative policy was chosen because the aim of the paper is to explore opportunities and barriers for cooperation addressing and handling global change linked to biodiversity and biosafety. For this purpose, an analytical framework for policy pioneership is outlined, which refers to and draws from public policy literature – in particular Scharpf's actor-centred institutionalism, Hall's concept of policy paradigms and Sabatier's advocacy coalition framework. The comparison of the US, California and the EU is based on a literature review. Therefore, the analysis is described at a relatively general level. However, a detailed empirical research of US, Californian and EU pioneership by the use of an in-depth analysis of specific cases would be highly insightful. This could be a follow-up to this paper.

It is unlikely that a single actor is able to determine policy outcomes single-handedly. And it is also unlikely that institutional settings prescribe one single option for action. It is rather a constellation of actors that interact with each other and operate in a specific institutional setting that shape policy outcomes. (Scharpf 1997: 42-4) Therefore, the proposed analytical framework includes actors that are grouped in aggregate groups for analytical purposes and takes into account the institutional rules within which they operate.

4.1 Policy Paradigm

Decision-makers' policy paradigms act as a filter for their actions. Therefore they need to be favourable for high standard policy and innovative ideas to make a political entity a policy pioneer. Hall (1993) argues that policy-makers generally work in an interpretive framework of ideas and beliefs that defines their goals and also the nature of the problem that they are addressing. Many assumptions defined by this interpretive framework, the policy paradigm, are taken for granted. Although not all decision-makers in one entity share the same beliefs, ideas and standards, for analytical purposes they are grouped into one aggregate group that has one predominant policy paradigm. Single actors in that group can be extraordinarily influential and outstanding personalities and leaders can have significant influence in shaping the predominant paradigm. The predominant policy paradigm of decision-makers in a political entity needs to be favourable and receptive to introducing ambitious policy. Fundamental beliefs such as whether the introduction of high standards or new ideas will lead to competitive advantages or disadvantages are important as well as the relative relevance that decision-makers give to economic and environmental or social issues. The predominant policy paradigm is an important factor in determining whether or not domestic decision-makers are inclined to introduce high standards or new ideas and therefore a condition for policy pioneering.

It appears that the EU and California display predominant policy paradigms that are favourable to high environmental protection standards. At the US federal level there are indications that the predominant policy paradigm changed toward more favouritism of increased environmental policy-making activities. For example in the case of climate change, the general paradigm appears to be very favourable for high emission reduction measures in both entities. Governor Schwarzenegger and the state legislative bodies exhibit a very positive attitude reflected in their actions and statements. The recently adopted measures such as the raising of the renewable energy goals to 33% by 2020 corroborate this. For the EU, the situation appears very similar. EU decision-makers exhibit a favourable policy paradigm for high climate

change-related measure. The EU's commitment of 20% reduction of CO_2 emissions, of an increase the share of renewables to 20% and a 20% increase of energy efficiency by 2020 demonstrate this. However, the predominant paradigm at the US federal level has not been very favourable to ambitious environmental policy in the past decades. In the 1960s and 1970s the US enacted 22 major environmental laws including the Endangered Species Act of 1973 that has helped prevent the extinction of many wildlife species. But since the Reagan presidency in the 1980s the paradigm shifted toward a gridlock in environmental policy-making activities. (Klyza and Sousa 2008:1-15) For example the Endangered Species Act was weakened by the Bush administration in a series of changes that made it more difficult to place species on the list. (The Washington Post 23 March 2008) But there are some indications that with the election of President Obama and the Democratic majority in both houses of Congress, the predominant paradigm changed in favour of increased activities on environmental matters. For example the announcements of President Obama and members of Congress to reverse some of the changes that were introduced to the Endangered Species Act corroborate this assessment. (Los Angeles Times 12 December 2008)

4.2 Advocacy Coalitions

The support by so-called advocacy coalitions is another decisive parameter determining the domestic capacity to introduce ambitious environmental policy. Actors other than decision-makers are also involved in policy diffusion and public policy-making. For analytical purposes, individual non-state actors are grouped into different aggregate groups. These groups form around shared belief systems, consisting of a set of basic values, causal assumptions and problem perceptions, which are translated into public policy preferences. Sabatier and Jenkins-Smith (1993) labelled these aggregate groups 'advocacy coalitions'. These coalitions can include a broad variety of actors such as business representatives, NGOs, academics, journalists, foreign country representatives and international organisations. Actors in these groups are not equally influential. Strong personalities can be very influential and stand out. And not all actors participating in the policy-making process are necessarily part of an advocacy coalition. Few researchers or bureaucrats may participate in the decision-making process in a neutral manner. The influence that different advocacy coalitions can have on policy-making depends on their resources in terms of finances, expertise and broad support. (Sabatier 1993: 25-9)

Advocacy coalitions provide information to and influence decision-makers in order to shape public policy according to their belief system. Generally, there is a small number of advocacy coalitions active on a particular policy issue and that can enter into a competition with each other in order to influence public policy. (Sabatier 1993: 34) However, despite their different belief systems, coalitions could also decide to cooperate on certain issues, in which they realise that they advocate similar policy solutions. Environmentalists and business, which generally have different belief systems, could agree on the introduction of certain environmental protection measures that serve both coalitions' beliefs. (DeSombre 2000) Depending on the polities of a political entity, advocacy coalitions are more or less influential. For example in China the government may be less influenced by stakeholders than in the US where certain actors may have considerable influence over public policy-making. Furthermore, the public policy outcome is likely to reflect elements from different advocacy coalitions' favoured policy option. Strong support for high standard policy and innovative ideas by advocacy coalitions is important for policy pioneership. This often leads to strong public support and enables or pushes decision-makers to enact ambitious or new policy measures. Strong domestic opposition to ambitious policy could influence decision-makers to scale down their ambitions.

The US, California and the EU have an elaborate infrastructure of advocacy coalitions and a relatively open and participatory system for stakeholder involvement. (Van den Hove 2000, VanNijnatten 1999.) Advocacy coalitions play an important role in shaping environmental policy-making in polities that have a number of access points and consultation procedures. The EU environmental policy-making procedure includes many formal and informal opportunities for stakeholders to make their opinion heard. Before legislative proposals are submitted to the European Parliament and the Council of Ministers, the Commission holds at least one stakeholder consultation. Sometimes policy is based on so-called White Papers or Green Papers that invite stakeholders to participate in the policy-formulation process before concrete legislative proposals are developed. After Washington, Brussels hosts the second largest number of lobbyists. But also through the Member States advocacy coalitions can exert influence on the EU policy process. (Greenwood 2007: 1-22) In the US and California the stakeholder involvement culture has a similarly high level as in the EU. There are many non-governmental actors involved in and pushing for the making of high protection level policy the environmental field. (Vogel, Toffel and Post 2005: 17-8, Berck and Brannlund 2008: 2)

4.3   Institutions, Path Dependency and Resources

Purposive actors and actor groups operate within an institutional system that enables and constrains the pursuit of their strategies. Positive and negative incentives provided by institutional rules increase or decrease the payoffs that actors could expect from certain actions. However, institutionalised rules do not prescribe one single option. They rather define the range of acceptable actions, which provides for a scope for strategic and tactical choices by actors. In exceptional cases, some actors may be willing to pay the political cost for breaching institutionalised rules. But institutionalised rules do not only define the scope of action they also influence their purpose and value. They determine the preferences of actors with regard to the feasible options. (Scharpf 1997: 36-42)

Institutions and Procedures

Institutionalised rules and procedures determine certain ways of policy-making that result in certain outcomes. For example, they can lead to favourable access to the decision-making process for certain actors and exclude others. Once institutions are established, actors rely on them and it becomes difficult to change them. Therefore, new governments and political leaders have to act within and to adapt to existing institutional settings that impose constraints and provide opportunities for them to act upon their preferences and beliefs. Moreover, institutionalised responsibilities and the departmental identities of actors shape their perceptions of situations and subsequent actions. (Scharpf 1997: 40-1) Therefore, an existing well-developed structure of institutions and procedures such as environmental ministries and agencies can emphasise environmental problems and bring solutions high up onto the decision-making agenda.

Institutions and procedures in the US, California and the EU are well developed and have proven the capacity to produce high standard and innovative policy-making. At the EU level, the European Commission maintains a department for the environment, the so-called DG Environment, one of the European Parliament's committees specifically deals with environmental policy and also the Council of Minsters meets in the configuration of Member State Environment Ministers. The procedures between these and other specialised bodies are well established and appear to be able to produce high standard environmental policy as expressed in the many EU Directives and Regulations that are at the forefront of global policy. Also the US and California has well-established and institutionalised structures of Environmental Protection Agencies and committees dealing with environmental policy in both the respective

Senates and the Assemblies. In California, these institutions and procedures have proven their capacity to develop innovative and high environmental protection standards as for example demonstrated by its eco system-based policy-making efforts for the protection of coastal marine areas. (McGinnis 2009) At the federal level, the institutions and procedures have proven the capacity for ambitious environmental policy in the 1960s and 1970. The stagnation of past decades appears to be more attributable to political constellations and policy paradigm shifts than to the institutional setting as such. (Klyza and Sousa 2008:1-15)

Existing Policy

The existing body of policies leads to a certain degree of path dependency. In cases of incremental change, as opposed to radical change, decision-makers base their action on existing policy and do not substantially depart from it. This is the most common practice of policy-making. If the existing body of policy provides for a good basis to build upon with further even more ambitious or innovative policy, the policy-making capacity of a political entity could be influenced positively. Yet, if the level of environmental policy is very low and the need to address this vacuum is recognised by decision-makers and advocacy groups, the chances for introduction of policy filling the vacuum could also be rather high. But these cases are more rare and often involve a change in government with accompanying paradigm change. Therefore, it is not the level of existing environmental policy but rather its compatibility with new ambitious environmental protection rules that are the determining parameter.

The US, California and the EU appear to have existing policy that is compatible with the introduction of challenging new environmental policy. Both California and the EU have got an extensive body of high standard policy in many areas of environmental policy. The extensive body of ambitious policy could be an indication that the EU and California will build upon this policy and develop it further. For example for the area of climate change, both entities developed an impressive body of rules and commitments in recent years that raise certain expectation and create a good basis for future high quality measures. The US federal level had a 'golden era' of environmental law making from 1964 to 1980 when it enacted a series of laws dealing with pollution control and the management of lands and wildlife such as the Endangered Species Act. But then these activities stalled and due to a long period of inactivity a vacuum on many contemporary environmental threats emerged. (Klyza and Sousa 2008:1-15) With the taking office of the Obama administration and the Democratic majority in both houses of Congress, it can be expected that the US federal level recognise the need for action to fill (parts of) this vacuum.

Resources

Resources enable actors to influence policy outcomes. Financial means, human resources and expertise can broaden or constrain actors' scope for action. (Scharpf 1997: 43) In cases of scarce resources, only the perceived to be most important and urgent policy problems can be dealt with. Hence, the financial means, human resources and expertise are important for a political entity to be capable to introduce high standard policy.

The US, the EU and California have a high level of economic development and are relatively prosperous in order to gather sufficient resources for extensive policy-making activities. The human resources and expertise of the EU level are quite well developed. In addition to DG Environment there are environmental experts working in the European Environmental Agency and the Joint Research Centres. Member State human resources and expertise contribute to EU environmental policy-making as well because EU environmental policy is implemented by the Member States and largely financed by their individual budgets. Also, the California Environmental Protection Agency employs a large corps of staff and California appears to invest

significant resources in environmental policy-making. It could be argued that both California and the EU possess and use significant amounts of resources to support their environmental policies. The US federal Environmental Protection Agency also employs a significant number of employees. In past years, there were cuts in funding and staff, which may be reversed by the new administration.

5 Transatlantic Cooperation fostering Biodiversity and Biosafety

From the analysis above, a number of lessons can be drawn for transatlantic cooperation on biodiversity and biosafety: Depending on the policy issue, different political entities can be best suited for transatlantic cooperation. Policy diffusion channels can highlight the different ways in which mutual influencing and cooperation across the Atlantic can take place. And the domestic capacity for ambitious environmental policy-making can provide insights into potential barriers and opportunities for transatlantic cooperation on biodiversity protection and biosafety.

5.1 Which Role for Whom?

The US, California and the EU have the policy competence to engage in environmental policy. As the US federal level has not been very active in recent decades, California and some other states filled in the resulting federal vacuum in environmental protection policy. California has traditionally played a driving role in US environmental policy. It influenced the US federal level to introduce higher environmental protection standards. (Carlson 2008) Therefore, California can play an important role domestically within the US by pioneering ambitious policy. But also externally, California can play an active role in advancing transatlantic cooperation. In some policy areas such as clime change, California has taken on a very proactive stance. It introduced a number of ambitious policy measures and Governor Schwarzenegger actively engages in cooperation with other US states and foreign countries. Hence, in the event of a lack of federal action, California is very well suited and willing to engage in innovative and ambitious policy-making and also to engage in transatlantic cooperation. However, once the federal level becomes more active, it would be more efficient and effective if the federal level takes over the parts of the cooperation that address issues that are dealt with at the federal level.

It depends on the policy issue, whether California or the US federal level would be best suited to engage in transatlantic cooperation. California can play an active role on biodiversity issues but less so on biosafety policy. Biodiversity conservation can be a very local task. It revolves around the protection of certain species and habitats that can be of a small scale and therefore be best addressed by the local and state level. Yet, biodiversity protection also requires larger scale coordination like the protection of a river that runs through a number of states. Therefore, the state level is best suited to address local issues of conserving biodiversity and to design policy responses that address specific situations and cases. The federal level is best suited to guarantee coordination and possibly to set minimum targets and objectives for all states. Consequently, both levels are suited to engage in transatlantic cooperation - on the respective issues they deal with domestically. California would be the most appropriate transatlantic partner for policy measures that it deals with at the local and state level.

Biosafety is a different kind of issues. It is exclusively dealt with at the federal level. The federal Environmental Protection Agency and the federal Department of Agriculture in consultation with the Food and Drug Administration oversee the production, environmental safety and commercial releases of GMOs. (Hochman, Rausser and Zilberman 2008) California does not regulate biosafety at the state

level. Therefore, transatlantic cooperation on biosafety-related issues would be most suited for the US federal level.

On the European side, this paper only takes into account the EU level but most of the considerations with regard to US federal and state level involvement also applies to the EU and its Member States.

5.2   Different Channels of Transatlantic Cooperation

To be strong transatlantic players in informal cooperation processes, the US, California and the EU need to have common points of interaction with each other. Drawing lessons from the analysis of the different diffusion channels, it could be argued that the US federal level and the EU are more likely to be powerful players in cooperation linked to economic interdependence, symbolic emulation and norm-based activities. In these areas, California can also play an influential role but its capacity to do so is less developed. With regard to learning and partially policy competition channels, California can have an impact similar to the US and the EU.

The policy diffusion channels help to identify different types of linkages and processes of interaction in the policy fields of biodiversity and biosafety. This can help to identify opportunities and barriers to transatlantic cooperation.

Biodiversity and biosafety policies can be subject to policy competition. Policy competition is based on considerations about the attractiveness of a political entity with regard to the conditions that it creates through its policy. On the one hand, biodiversity conservation policy can restrict the use certain areas and resources. But on the other hand, it can create or preserve conditions provided by an intact habitat or certain species that would otherwise not be present anymore. Equally, biosafety policy can create situations that are considered favourable or unfavourable by industry, farmers and citizens. Domestic firms that are leading on GMO technology would have a competitive advantage over other companies if domestic and ideally international policy would be favourable to the placing on the market of genetically modified products. Domestic policy restricting the marketing of GMOs would benefit a domestic industry that focuses on GMO-free production. (Hochman. Rausser and Zilberman 2008)

Biosafety policy can be influenced by economic interdependence to a greater degree than biodiversity. The US is the EU's largest trading partner in food and beverages with total exports of €11.2 billion and total imports of €5.9 billion in 2007. (Eurostat) And the EU is one of the most important trading partners and competitors of the US in world agricultural markets. (US Department of Agriculture) Policy regulating agricultural products in the EU and the US has a direct impact on the respectively other side of the Atlantic. The EU's reluctance to allow the placing of GMOs on its market had a tremendous direct impact on US agricultural business, which makes extensive use of GMOs. A significant export market for the US broke away. For biodiversity policy economic interdependence does not play a significant role because biodiversity conservation is often targeted toward habitats. However, for the trade in endangered species or illegal timber, economic interdependence could play a role if one side of the Atlantic would be a significant importer of a product linked to endangered species or illegal logging and then cease or regulate these imports.

Learning can play an important role in both biodiversity and biosafety policies. Approaches to biodiversity conservation are manifold. They can address certain aspects of biodiversity such as coastal marine areas, particular species or river basins. And there are many different policy instruments with which these issues can be addressed. Hence, there are many possibilities and options for different learning processes. Depending on the issue and the scale of the policy measure, different actors and levels of governance can be involved. Policy options addressing biosafety

are much more limited. It mainly revolves around the authorisation for use of certain genetically modified crops. Learning processes could involve the different methods of assessing potential risks posed by different kinds of GMOs and procedural and institutional issues. Communication and exchange of experiences with the respective frameworks of GMO governance could lead to a learning process on both sides of the Atlantic. (Alemanno 2008)

Symbolic emulation could principally take place in both areas biosafety and biodiversity. However, the EU and the US are the two largest trading blocks and significant political powers. They would not engage into symbolic emulation for reasons of their legitimacy in the international arena or because they trust the respectively other entity. It could be argued that the EU and the US consider themselves as influential and powerful enough to not need to engage into symbolic emulation. For California the symbolic emulation rationale may be more applicable. Since California strives to be a pioneer and leader in environmental issues, it may introduce certain policy measures in order to send a message to jurisdictions. But there is a number of cases in which California pioneered policy that triggered emulation. As discussed above, the US, California and the EU possess the capacity to be at the source of symbolic emulation.

Transatlantic cooperation on biodiversity conservation and biosafety policy could be a result of norm-based considerations. Commonly accepted international norms about the conservation of biodiversity have developed and could continue developing. The Convention on Biological Diversity is one expression of these commonly accepted norms. With regard to biosafety globally accepted norms have not (yet) emerged. Different countries and regions clash over what they consider the appropriate approach toward biosafety. The most prominent proponent of the very restrictive and precautionary approach is the EU and the most prominent proponent of the more tolerant approach is the US.

Table 1: Relevance of interaction channels for transatlantic cooperation

	Biodiversity	**Biosafety**
Policy Competition	influential	influential
Economic Interdependence	irrelevant	influential
Learning	influential	influential
Symbolic Emulation	irrelevant	irrelevant
Norm-based Activities	influential	currently irrelevant

5.3   Opportunities and Limits to Transatlantic Cooperation

Drawing lessons from the domestic capacity for ambitious environmental policy-making, transatlantic cooperation on biodiversity appears to be easier to implement than cooperation on biosafety policy. The domestic parameters for policy-making on biodiversity conservation are equally favourable on both sides of the Atlantic whereas for biosafety they display significant differences that make it difficult to find common aims and objectives for cooperation.

The predominant policy paradigm with regard to biosafety differs significantly between the US and the EU rendering transatlantic cooperation difficult. Biosafety policy in the EU is based on the precautionary principle. This principle suggests that in cases in which harm cannot be excluded and in which scientific uncertainty about the risk prevails, precaution should be applied. Since scientific opinions about the

risk posed by GMOs diverge and a risk to humans and the environment cannot sufficiently be excluded, the EU and particularly some of its Member States chose an extremely precautionary approach to authorisation of the marketing of GMOs. Biotechnology policy in the US is based on the substantial equivalence principle. This means that genetically modified crops that exhibit health and nutritional characteristics similar to conventional crops is considered to be as safe as the conventional crops. (Vogel 2003, Hochman. Rausser and Zilberman 2008) These different principles reflect strongly divergent paradigms in the EU and the US, which constitutes a significant barrier to transatlantic cooperation on biosafety policy.

On biodiversity issues, the EU and California appear to have a favourable predominant policy paradigm. And since the presidential and congressional elections in autumn 2008, the US federal level also seems to have changed toward a more favourable paradigm for ambitious biodiversity conservation policy. The EU committed to halting biodiversity loss within its territory by 2010. It introduced biodiversity laws such as the Birds and the Habitat Directives and Natura 2000 network of protected areas. California signed a memorandum of understanding with federal, state and local entities recognising the need to protect and manage eco systems. It introduced some ambitious measures such as its coastal marine policy, which takes an eco system-based approach as opposed to the conventional sectoral approaches to managing particular species or resources and particular problems such as marine pollution. (McGinnis 2009) The US federal government very recently adopted its Public Lands Management Act that will protect two million acres of wilderness and one thousand miles of river. Hence, the predominant policy paradigm in the US, California and the EU appears to provide many opportunities for ambitious transatlantic cooperation on biodiversity.

Belief systems regarding biosafety policy of advocacy coalitions on the two sides of the Atlantic differ significantly, which builds another barrier to transatlantic cooperation on that issue. US-based companies are world leaders in biotechnology and dominate the market. EU chemical companies have not invested in R&D for biotechnology but rather for agricultural chemicals. Hence, industry shows a divide in their interests along the Atlantic. Vocal anti-GMO activists and food scandals such as the Mad Cow Disease made citizens sceptic of food production methods in general, which led to a GMO-sceptic public opinion in the EU whereas the topic did not gain much public attention in the US. (Vogel 2003, Hochman. Rausser and Zilberman 2008) Advocacy coalitions on both sides of the Atlantic support very different biosafety policies. This makes transatlantic cooperation difficult.

Advocacy coalition support on biodiversity conservation does not seem to differ significantly in the US, California and the EU, which is favourable for transatlantic cooperation. In all three entities there are a number of civil society organisations advocating ambitious biodiversity policy such as the European Environmental Bureau in the EU, the California Wilderness Coalition and the Biodiversity Action Network at the US federal level. In none of the three political entities there appears to be a strong or unified business coalitions opposing biodiversity measures. But there are a number of business initiatives such as the World Business Council for Sustainable Development that have ecosystems as one of their focus areas.

For biosafety policy EU and US institutions and procedure differ significantly building a barrier to transatlantic cooperation. The EU procedures encounter problems due to the resistance of some Member States to accept the marketing of any GMO whereas some other countries are more receptive to introducing a risk assessment and authorisation procedure. In the US, GMOs of substantial equivalence are assessed with the same procedures as conventional crops and food. This procedure appears to be favourable for the authorisation of a number of genetically modified products. Hence, institutions and procedures for biosafety measures diverge significantly in the

US and the EU providing very different scopes for action for political actors and stakeholders. This institutional framework complicates transatlantic cooperation on biosafety policy.

Institutions and procedures seem to be well developed in the US, California and the EU for biodiversity conservation policy-making providing a good climate for transatlantic cooperation.

The existing body of policy on biosafety in the US and the EU is based on very different assumptions, namely the precautionary principle and the substantial equivalence principle. This provides for diverging path dependency for both entities, which is not beneficial for transatlantic cooperation.

Existing biodiversity policy in California and the EU appears to provide for a certain degree of ambition and comprises a number of different policy measures such as the EU and Californian river restoration policies. (Bouleau and Kondolf 2009) The existing US federal biodiversity policy has been weakened in the past decades. However, the new political majorities appear to have recognised this as a need for action on issues such as public land management.

Financial means, human resources and expertise appear to be sufficiently present on both policy issues and in all three political entities. Resource problems cannot be identified as barriers to transatlantic cooperation.

Table 2: Comparison of domestic policy-making parameters for transatlantic cooperation

	Biodiversity	Biosafety
Policy Paradigm	EU and California favourable, US increasingly favourable	EU and US differ significantly
Advocacy Coalitions	US, California and EU favourable	EU and US differ significantly
Institutions and procedures	US, California and EU well developed	EU and US differ significantly
Existing Policy	US, California and EU favourable	EU and US differ significantly
Resources	US, California and EU similarly sufficient	EU and US similarly sufficient

6   Conclusions

Not only nation states can be powerful players in transatlantic environmental cooperation. Also supra- and sub-national entities like the EU and California can be important actors. The EU is the main contact of the US in the domain of biosafety. This policy field is dealt with exclusively at the US federal and the EU level respectively. Therefore, these two players are the main actors in possible transatlantic cooperation on biosafety policy. For cooperation on biodiversity conservation policy multiple levels of governance may be suitable. Biodiversity has many facets and depending on the specific issue that is dealt with local, regional, national or supra-national levels may be most suitable. Therefore, the US, California and the EU (and its Member States) can play an important role in transatlantic cooperation on biodiversity.

From the detailed analysis of the different dynamics of policy diffusion it can be concluded that the US federal level and the EU are more powerful players in transatlantic cooperation relating to economic interdependence, symbolic emulation and norm-based activities. California is a player with strengths comparable to the US and the EU with regard to learning and partially policy competition.

Biodiversity and biosafety are different kinds of policy issues that are receptive to different channels of interaction across the Atlantic. These differences should be taken into account when designing methods for transatlantic cooperation. Policy competition plays an important role on both issues. Economic interdependence is not very relevant for biodiversity policy but highly influential for biosafety policy. Learning can play a very important role in cooperation on both biodiversity and biosafety issues. Symbolic emulation is not very relevant when discussing transatlantic cooperation because both the EU and the US are major players in global politics and are not very much receptive to the emulation reasoning. There are no commonly accepted norms on biosafety that could build a basis for transatlantic cooperation. On biodiversity, the US, California and the EU agree on a number of general norms. Hence, methods for transatlantic cooperation on biosafety policy should take into account the high degree of policy competition and economic interdependence between the US and the EU. Methods for transatlantic cooperation in biodiversity should take into account policy competition considerations and norms that have been commonly accepted. The design of effective learning processes appears highly relevant for both policy issues.

The capacity of the US, California and the EU to introduce ambitious biodiversity policy with converging aims and objectives seems high. But their domestic policy-making parameters differ significantly on biosafety issues. The analysis of their capacity to introduce ambitious policy provides insights into the differences and similarities between the US, Californian and EU. On biosafety the US and the EU differ significantly with regard to decision-makers' and other stakeholders' preferences and beliefs. Also institutions, procedures and existing policy differ. This makes it difficult to find a common ground for cooperation. Therefore, it should be considered focusing on areas where finding a common ground would be possible. These would most likely be areas that are not highly politicised such as practical and technical issues. On biodiversity the predominant policy paradigms in the EU, California and increasingly the US federal level appear to be favourable for meaningful transatlantic cooperation. Favourable advocacy coalition support can be observed in all three entities. And institutions, existing policy and resources display good conditions for cooperation and learning at the various levels of governance across the Atlantic.

If both sides of the Atlantic develop a strong cooperation on biodiversity and/or biosafety policy, they can have a significant impact on policy in other countries around the world. Joint transatlantic forces can trigger the diffusion of their policies to a large number of countries.

7 References

Alemanno, Alberto. 2008. How to get out of the Transatlantic Regulatory Deadlock over GMOs? Paper presented at the workshop of the project *Transatlantic Methods for Handling Global Challenges – Managing Biosafety and Biodiversity in a Global World*. Berkeley. 11-12 December 2008.

Andresen, Steinar and Shardul Agrawala. 2002. Leaders, Pushers and Laggards in the Making of the Climate Regime. *Global Environmental Change* 12 (1): 41-51.

Berck, Peter and Runar Brannlund. 2008. De-Carbonizing California and the EU. *IGS Working Paper* 2008-3. Berkeley. Institute of Governmental Studies.

Bouleau, Gabrielle and Matt Kondolf. 2009. Rivers of Diversity: Evolving Water Regulation in California and the European Union. Paper presented at the workshop of the project *Transatlantic Methods for Handling Global Challenges – Managing Biosafety and Biodiversity in a Global World*. Leuven. 15-16 January 2009.

Bretherton, Charlotte and John Vogler. 2006. *The European Union as a Global Actor*. Second Edition. Milton Park and New York. Routledge.

Brooks, Sarah M. 2007. When Does Diffusion Matter? Explaining the Spread of Structural Pension Reforms Across Nations. *The Journal of Politics* 69(3): 701-15.

Busch, Per-Olof and Helge Joergens. 2005. International Patterns of Environmental Policy Change and Convergence. *European Environment* 15 (2): 80-101.

Carlson, Ann E. 2008. California Motor Vehicle Standards and Federalism: Lessons for the European Union. *IGS Working Paper* 2008-4. Berkeley. Institute of Governmental Studies.

Delreux, Tom. 2006. The European Union in International Environmental Negotiations: A Legal Perspective on the Internal Decision-making Process. *International Environmental Agreements* 6 (3): 231-48.

DeSombre, Elizabeth R. 2000. *Domestic Sources of International Environmental Policy. Industry, Environmentalists, and U.S. Power*. Cambridge, Massachusetts. MIT Press.

Dolowitz, David P. 2000. Policy transfer: a new framework of policy analysis. In Dolowitz, David P., Rob Hulme, Mike Nellis and Fiona O'Neill (eds.). *Policy Transfer and British Social Policy Learning from the USA?*: 9-37.

Drezner, Daniel W. 2001. Globalization and Policy Convergence. *International Studies Review* 3(1): 53-78

Environment News Service (ENS). 25 March 2009. *Congress Votes 'Yes' to Sweeping Public Lands Protection Act.*

Environment News Service (ENS). 24 April 2003. *Bush Public Lands Policy Under Fire*.

Finnemore, Martha and Kathryn Sikkink. 1998. International Norm Dynamics and Political Change. *International Organization* 52 (4): 887-917.

Fitzgerald, Edward A. 1996. The Constitutional Division of Powers with Respect to the Environment in the United States. In Holland, Kenneth M., F. L. Morton and Brian Galligan (eds.). *Federalism and the Environment: Environmental Policymaking in Australia, Canada, and the United States*. Westport, Connecticut and London. Greenwood Press: 19-36.

Greenwood, Justin. 2007. *Interest Representation in the European Union*. Houndmills, Basingstoke, Hampshire and New York. Palgrave Macmillan.

Hall, Peter A. 1993. Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. *Comparative Politics* 25 (3): 275-96.

Hioureas, Christina G. and Bruce E. Cain. 2008. Transatlantic Environmental Regulation-Making: Strengthening Cooperation between California and the European Union. Paper presented at the workshop of the project *Transatlantic Methods for Handling Global Challenges – Managing Biosafety and Biodiversity in a Global World*. Berkeley. 11-12 December 2008.

Hochman, Gal, Gordon Rausser and David Zilberman. 2008. U.S. versus E.U. Biotechnology Regulations and Comparative Advantage: Implications for Future Conflicts and Trade. Paper presented at the workshop of the project *Transatlantic Methods for Handling Global Challenges – Managing Biosafety and Biodiversity in a Global World*. Berkeley. 11-12 December 2008.

Holzinger, Katharina, Helge Joergens and Christoph Knill. 2007. Transfer, Diffusion und Konvergenz: Konzepte und Kausalmechanismen. *Politische Vierteljahresschrift* Sonderheft 38/2007: 11-35.

Howlett, Michael and M. Ramesh. 2003. *Studying Public Policy: Policy Cycles and Policy Subsystems*. 2nd edition. Toronto. Oxford University Press.

Jaenicke, Martin. 2007. Trendsetter im "regulativen Kapitalismus": Das Beispiel umweltpolitischer Pionierlaender. *Politische Vierteljahresschrift* Sonderheft 38/2007: 131-49.

Jaenicke, Martin. 2005. Trend-Setters in Environmental Policy: the Character and Role of Pioneer Countries. European Environment 15 (2): 129-42.

Joergens, Helge. 2004. Governance by diffusion: implementing global norms through cross-national imitation and learning. In Lafferty, William M. (ed.). *Governance for Sustainable Development. The Challenge of Adapting Form to Function*: 246-83.

Kelemen, Daniel R. 2004. *The Rules of Federalism: Institutions and Regulatory Politics in the EU and Beyond*. Cambridge, Massachusetts and London. Harvard University Press.

Kendall, Douglas T. (ed.). 2004. *Redefining Federalism: Listening to the States in Shaping "Our Federalism"*. Washington. Environmental Law Institute.

Klyza, Christopher McGrory and David J. Sousa. 2008. *American Environmental Policy, 1990-2006. Beyond Gridlock.* Cambridge, Massachusetts and London. MIT Press.

Kraemer, Andreas R. and Miranda A. Schreurs. 2007. Federalism and Environmentalism in the United States and Germany. *AICGS Policy Report*. Washington. American Institute for Contemporary German Studies.

Kysar, Douglas A. and Bernadette A. Meyler. 2008. Like A Nation State. *UCLA Law Review* 55 (6): 1621-1674.

Lazer, David. 2001. Regulatory Interdependence and International Governance. *Journal of European Public Policy* 8 (3): 474-92.

Los Angeles Times. 12 December 2008. *Bush Administration Takes Independent Scientific Reviews out of Endangered Species Act*.

McGinnis, Michael Vincent. 2009. Addressing Biodiversity Loss in a Changing Climate: The Imporatnce of Coastal Marine Ecosystem-based Regulatory Policy in the Euro-Mediterranean, U.S., and California. Paper presented at the workshop of

the project *Transatlantic Methods for Handling Global Challenges – Managing Biosafety and Biodiversity in a Global World*. Leuven. 15-16 January 2009.

Meseguer, Covadonga. 2006. Rational Learning and Bounded Learning in the Diffusion of Policy Innovations. *Rationality and Society* 18 (1): 35-66.

Meseguer, Covadonga. 2006b. Learning and Economic Policy Choices. *European Journal of Political Economy* 22 (1): 156-78.

Meseguer, Covadonga. 2005. Policy Learning, Policy Diffusion, and the Making of a New Order. *The Annals of the American Academy* 598 (1): 67-82.

Porter, Michael E. and Claas van der Linde. 1995. Green and Competitive: Ending the Stalemate. *Harvard Business Review* 73 (5): 120–134.

Reuters. 30 March 2009. *Obama Signs Landmark U.S. Conservation Bill*.

Rosenau, James N. 1999. Toward an Ontology for Global Governance. In Hewson, Martin and Timothy J. Sinclair (eds.) *Approaches to Global Governance Theory*: 287-301.

Sabatier Paul A. 1993. Policy Change over a Decade or More. In Sabatier Paul A. and Hank C. Jenkins-Smith (eds.). *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, San Francisco and Oxford. Westview Press: 13-39.

Sabatier Paul A. and Hank C. Jenkins-Smith (eds.). 1993. *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, San Francisco and Oxford. Westview Press.

Scharpf, Fritz W. 1997. *Games Real Actors Play. Actor-Centred Institutionalism in Policy Research*. Boulder and Oxford. Westview Press.

Schreurs, Miranda A., Henrik Selin and Stacy VanDeveer. 2009. Expanding Transatlantic Relations: Implications for Environment and Energy Politics. In Schreurs, Miranda A., Henrik Selin and Stacy VanDeveer (eds.). *Transatlantic Environment and Energy Politics. Comparative and International Perspectives.* Surrey and Burlington. Ashgate Publishing.

Stone, Diane. 2000. Learning Lessons, Policy Transfer and the International Diffusion of Policy Ideas. *University of Warwick Centre for the Study of Globalisation and Regionalisation (CSGR) Working Paper* 69(1).

Tews, Kerstin, Per-Olof Busch and Helge Joergens. 2003. The diffusion of new environmental policy instruments. *European Journal of Political Research* 42(4): 596-600.

Tews, Kerstin and Per-Olof Busch. 2001. Governance by Diffusion? Potentials and Restrictions of Environmental Policy Diffusion. In Biermann, Frank, Rainer Brohm and Klaus Dingwerth (eds.). *Proceedings of the 2001 Berlin Conference on the Human Dimension of Global Environmental Change "Global Environmental Change and the Nation State"*: 168-82.

The Washington Post. 23 March 2008. *Since '01, Guarding Species is Harder*.

Van den Hove, Sybille. 2000. Participatory Approaches to Environmental Policy-making: the European Commission Climate Policy Process as a Case Study. *Ecological Economics* 33 (3): 457-72.

VanNijnatten, Debora L. 1999. Participation and Environmental Policy in Canada and the United States: Trends over Time. *Policy Studies Journal* 27 (2): 267-87.

Vogel, David, Michaael Toffel and Diahanna Post. 2005. Environmental Federalism in the European Union and the United States. In Wiken, Frank, Kees Zoeteman and Jan Peters (eds.). *A Handbook of Globalization in Environmental Policy: National*

Government Interventions in a Global Arena. Cheltenham and Northampton, Massachusetts. Edward Elgar Publishing: 247-76.

Vogel, David. 2003. The Politics of Risk Regulation in Europe and the United States. In Somsen, Han, Thijs Etty, Joanne Scott and Ludwig Krämer (eds.). *The Yearbook of European Environmental Law*. Oxford. Oxford University Press

Vogel, David. 1997. Trading up and governing across: transnational governance and environmental protection. *Journal of European Public Policy* 4(4): 556-71.

Vogler, John. 1999. The European Union as an Actor in International Environmental Politics. *Environmental Politics* 8 (3): 24-48.

Weale, Albert, Geoffrey Pridham, Michelle Cini, Dimitrios Konstadakopulos, Martin Porter and Brendan Flynn. 2003. *Environmental Governance in Europe: An Ever Closer Ecological Union?*. Oxford. Oxford University Press.

Weyland, Kurt. 2005. Theories of Policy Diffusion: Lessons from Latin American Pension Reform. *World Politics* 57 (2): 262-95.

Yu, Jieqiong, Richard Welford and Peter Hills. 2006. Industry Responses to EU WEEE and RoHS Directives: Perspectives from China. *Corporate Social Responsibility and Environmental Management* 13 (5): 286-99.

Websites

European Commission: www.ec.europa.eu

Eurostat: www.ec.europa.eu/eurostat

Governor of California: http://gov.ca.gov

US Department of Agriculture Statistics: www.ers.usda.gov

US Department of Commerce: www.commerce.gov

US Department of State: www.usembassy.gov

WTO Statistics: http://stat.wto.org