EUSA Conference, Los Angeles, 25 April 2009

Global REACH?:
The Potential International Impact of EU Chemicals Regulation

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Abstract:

The central question of this paper is: Could the new EU chemicals regulation REACH play a role in international chemicals governance – and if so, how? The REACH Regulation is one of the largest and most controversial pieces of legislation that the EU has ever adopted. It introduces a comprehensive and ambitious system for chemicals management, which moves away from a hazard-based approach toward a more risk-based approach. Furthermore, REACH introduces increased responsibilities for private actors and aims at encouraging more innovation. These new EU rules for the management of chemical substances are more comprehensive and more ambitious than current efforts at the international level. Therefore, this paper argues that there could be a mutual supplementation of international chemicals initiatives and REACH. On the one hand, REACH could complement international activities through the diffusion of its ambitious requirements and the data that it will produce. Diffusion could potentially happen faster than the international negotiation procedures and create facts that facilitate consensus finding for ensuing international agreement. Policy diffusion could also potentially reach a very broad scope of countries, including jurisdictions that are not part of current international agreements. On the other hand, international organisations could foster and enhance the diffusion process and institutionalise some of the REACH provisions. Furthermore, international agreements play an important role in taking particular account of the situation of developing countries and in providing a certain 'baseline' degree of safe international chemicals management.

This paper first introduces the main features of the REACH Regulation. Then, it describes the international system of chemicals governance before discussing the contribution that REACH could make to this system. In the subsequent section, the different ways in which REACH requirements could diffuse to other jurisdictions and benefit international governance are analysed. These conceptual considerations are then applied to the US and California in a brief discussion of first signs of the potential influence of REACH. Since the REACH Regulation only entered into force on 1 June 2007 and will only be fully implemented by 2016, the full international impact of REACH will only become clear at a future point in time.

Keywords: Chemicals Regulation, Policy Diffusion, Regulatory Leadership

1 Introduction

The central question of this paper is: Could the new EU chemicals regulation REACH play a role in international chemicals governance – and if so, how? The REACH Regulation is one of the largest and most controversial pieces of legislation that the EU has ever adopted. (Selin 2007: 64, Pesendorfer 2006: 105-6, 108-11) It introduces a comprehensive and ambitious system for chemicals management, which shifts from the previously dominant hazard-based approach toward a more risk-based approach. REACH gives greater responsibility to private actors by requiring them to provide information about intrinsic properties of chemicals, to ensure that this information is used to assess possible risks and to ensure that the risks are appropriately managed. Moreover, the same registration, evaluation and authorisation requirements are applied to all, existing and new, chemicals and the obligation to substitute chemicals where possible was introduced to stimulate innovation activities.

These innovative elements of the REACH Regulation can complement the rather fragmented system of chemicals governance at the international level through policy diffusion. With other pieces of legislation, the EU has already demonstrated that it has the capacity to trigger the diffusion of its ambitious environmental requirements to other jurisdictions around the globe. One example is the case of the restriction of hazardous substances in electrical and electronic equipment. Following the introduction of these requirements in the EU, a number of jurisdictions introduced similar requirements. For example, China introduced its 'Management Measures for the Prevention and Control of Pollution from Electronic Information Products', which sets the foundation for banning the same hazardous substances from electronic products as the EU did. California's legislation on the matter equally restricts the same substances from certain electronics and the state legislature is discussing to enlarge the scope of products in line with the scope set by the EU. Additionally to these legislative reactions to EU legislation, the RoHS Directive directly shaped production of electronics internationally through global supply chains. The REACH Regulation exhibits some features that suggest that it equally has the potential to provoke the diffusion of some of its provisions to other jurisdictions and thereby contributing to international chemicals governance.

This paper first introduces the main features of the REACH Regulation. Then it describes the international system of chemicals governance before discussing the contribution that REACH could make to this system. In the subsequent section, the different ways in which REACH requirements could diffuse to other jurisdictions and benefit international governance are analysed. These conceptual considerations are then applied to the US and California in a brief discussion of first signs of the potential influence of REACH. Since the REACH Regulation only entered into force on 1 June 2007 and will only be fully implemented by 2016, the full international impact of REACH will only become clear at a future point in time.

2 The REACH Regulation

The EU Regulation on the Registration, Evaluation and Authorisation of Chemicals (REACH) replaces the fragmented patchwork of previous EU chemicals legislation with one comprehensive and ambitious regulatory regime. It entered into force on

1 June 2007[1] and its aim is "to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances. At the same time, innovative capability and competitiveness of the EU chemicals industry should be enhanced." (European Commission REACH website). REACH provisions will be phased-in over a period of 11 years.

REACH replaces the previous conglomeration of different and fragmented pieces of EU chemicals legislation that were introduced since 1967. Prior to REACH, the main EU regulatory regime for chemicals applied only to substances placed on the market after 1981, which represent only about 1% of all chemicals on the market. As a consequence, for most chemicals in use there were only few safety regulations. And there was little information about the health and environmental risks presented by these 'existing' substances. On the one hand, there was no incentive for chemicals manufacturers to produce and communicate such information. And on the other hand, regulatory authorities did not dispose of the necessary resources to produce hazard and risk information. This regulatory situation favoured the use and production of already existing chemicals that were placed on the market prior to 1981, since new chemicals were regulated more stringently and had to be tested before being placed on the market. (European Commission 2001, Fisher 2008: 546-7, Hey, Jacob and Volkery 2007: 1863) In order to address these shortcomings of previous EU chemicals regulation, the REACH Regulation was introduced. (European Commission 2007: 3)

REACH consists of three main stages: registration, evaluation and authorisation. Registration is a precondition for activities in the EU market. All chemicals put on the EU market in a quantity over 1t per year per producer[2] will have to be registered. Information on intrinsic properties, hazards and the specific uses of chemical substances has to be registered in a central database operated by the European Chemicals Agency (Echa)[3]. Producers have to use this information to assess the risks that may arise from the their uses of the substance and they have to ensure that these risks are appropriately managed. REACH puts a specific emphasis on large volume substances. Chemicals put on the EU market in a volume above 10t per year per producer require a chemical safety report whereas chemicals between 1t and 10t per year per producer only necessitate a safety data sheet, which contains a less extensive data set. High volume chemicals have to be registered first in a staged registration approach. By the end of May 2018, all chemical substances above 1t per year per producer will have to be registered[4]. (Hansen and Blainey 2008: 119-21)

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1 Regulation EC 1907/2006 is the central piece of the new EU chemicals legislation and generally referred to as REACH. Additionally there is Directive 2006/121/EC that contains technical adaptations of Directive 67/548/EEC on the classification, packaging and labelling of dangerous substances. This Directive applies in parallel to the REACH Regulation.

2 The term 'producer' includes EU-based manufacturers and importers into the EU.

3 The Agency (http://echa.europa.eu/) acts as the central point in the REACH system: it manages the databases necessary to operate the system, co-ordinates the in-depth evaluation of suspicious chemicals and runs a public database in which consumers and professionals can find hazard information. (http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm)

4 After a pre-registration for all chemicals (1 June – 1 December 2008), chemicals above 1000t, CMRs above 1t and chemicals very toxic to aquatic organisms above 100t will have to be registered by 30 November 2010, chemicals between 100t and 1000t will have to be registered by 31 May 2013 and chemicals between 1t and 100t will have to be registered by 31 May 2018. (European Commission 2007: 9)

Furthermore, REACH contains specific registration and notification provisions for articles to address the potential risk arising from products, such as electronics, textiles and cars, put on the EU market. Substances above 1t per year per producer that are intentionally released from an article, such as a printer cartridge, have to be registered according to the general registration rules, including the different tonnage deadlines. Additionally, substances of very high concern (SVHC) that are listed on the so-called 'candidate list' for authorisation have to be notified to Echa if they are present in articles above a concentration of 0.1% weight by weight of the article and if they exceed the quantity of 1t per year per producer[5]. Notification requirements are lighter than registration requirements. Following a notification, Echa can request a full registration if deemed necessary. If an exposure to humans and the environment can be excluded under normal and foreseeable use in the entire life cycle, a notification is not required. Additionally, producers are also obliged to provide information to consumers if they demand for it. (European Commission 2007: 9-10)

In the evaluation stage, the competent authorities of the EU Member States analyse the data submitted by the producers with regard to possible risks to the environment and human health. If needed, the authorities can request additional information from producers. For substance of very high concern, restrictions can be imposed and authorisation for the continued use of a substance can be required. In a comitology procedure[6], it will be decided which substance should be subject to authorisation (i.e. will be put on annex XIV), which uses will be exempted from the authorisation requirement and which deadlines will have to be met by the producers. The use of annex XIV chemicals is prohibited unless the authorities have granted authorisation for producers that can demonstrate that their use of the specific chemical is adequately controlled or that socio-economic benefits outweigh the risk and that there is no suitable alternative. In cases where suitable alternatives exist, substitution plans are obligatory. The restriction procedure allows for regulating production conditions, placing on the market and use of substances that impose an unacceptable risk to humans and the environment. (European Commission 2007: 12-4)

REACH is a complex piece of legislation that combines an innovative market-based element with a rather traditional regulatory element. The innovative market-based aspect refers to the requirement for producers to provide information about chemicals and their uses. This will have a significant impact on the chemicals market. On the one hand, consumers are entitled to request information about the chemical contents of products. On the other hand, information has to be communicated throughout the entire supply chain of products and registered at Echa. This creates more transparency about the properties of chemicals and the way they are used, which facilitates the identification of hazards and risks. This transparency can trigger changes in the marketing of chemicals and their use in manufacturing processes because consumers could exert pressure on producers and the new supply chain information could facilitate risk management improvements in the manufacturing process. Hey, Jacob and Volkery call this innovative aspect "regulated self-regulation" (2007: 1864-5). This element is combined with a rather traditional command-and-control aspect, which refers to the regulatory approach towards restricting and authorising chemical substances. (Fisher 2008: 545-7)

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[5] In October 2008, Echa published the first candidate list of 15 SVHCs approved by a committee of EU Member States. As of December 2011, the notification requirement of all substance on the candidate list will apply.

[6] For implementation of EU legislation, the Commission can be assisted by a committee – if specified in the respective piece of legislation. This procedure is commonly referred to as 'comitology'. The committees consist of representatives from the EU Member States and are chaired by the Commission.

Moreover, REACH introduces an element of increased responsibility for private actors. REACH obliges private actors (a) to provide information about intrinsic properties, hazards and uses of the chemical substances they produce or import into the EU, (b) to ensure that this information is used to assess the risk that may arise from different uses and (c) to ensure that this risk is appropriately managed. This is a shift from the previous approach in which public authorities had the responsibility to collect data about substances and to assess the risks and hazards these chemicals present. The registration and communication in the supply chain provisions will produce a large amount of data that can be used for risk evaluation by private actors themselves and by public authorities. The privatisation of information collection also leads to the internalisation of the costs of producing this information. (Fisher 2008: 548-51)

In addition, REACH is a change from previous EU chemicals regulation with regard to its anticipation and mitigation of risks and its encouragement of innovation. Through the registration of data on intrinsic properties, hazards and uses, possible risks can be identified earlier than through previous regulatory approaches. The Regulation focuses on use-specific authorisation and on substitution where possible. In the authorisation procedure, it moves away from a hazard-based approach in favour of a risk-based approach. In this way, the regulation of chemicals is more targeted toward the real risks. The substitution requirement encourages innovation because it rewards the development of safer alternatives with the prospect of mandatory substitution requirements. Additionally, by treating existing and new chemicals in the same way, REACH removes the incentive to use existing chemicals and encourages innovation.

The new and innovative elements of REACH – the requirement and responsibility for producers to provide data and to assess risks, the earlier identification of risks, the risk-based approach, the emphasis on substitution and the equal treatment of new and existing chemicals – make REACH arguably the most comprehensive and most ambitious chemicals regulation in the world. (Wirth 2007a: 100)

3 International Chemicals Policy

In order to analyse whether and how REACH could play a role not only domestically in the EU but also in international chemicals governance, the following section provides an overview of international activities with regard to chemical substances.

Chemicals policy on the international level is made up of a number of voluntary initiatives and a set of international agreements addressing different aspects of chemicals management. Voluntary initiatives mainly aim at information gathering, capacity building and international cooperation. The five main legally binding international agreements deal with different aspects of the chemicals life cycle, i.e. production, use, trade and disposal.

3.1 Voluntary Initiatives

There is a number of voluntary programmes that aim at gathering and assessing information about the hazard and risk presented by chemicals and thereby assisting national and international policy-making. Single international organisations operate chemicals programmes and initiatives. But there are also joint initiatives of a number of organisations. Some major initiatives are outlined below.

The United Nations Environmental Programme (UNEP) operates a chemicals programme that works together with countries “to build national capacity for the clean production, use and disposal of chemicals, and promotes and disseminates state-of-the-art information on chemical safety. (…) It facilitates global action, including the

development of international policy frameworks, guidelines and programs, to reduce and/or eliminate risks from chemicals." (UNEP[7]).

The Organisation for Economic Cooperation and Development (OECD) operates a chemical safety programme that "works on the development and coordination of environment, health and safety activities internationally". Amongst other activities, OECD maintains an Internet page providing free access to information on the properties of chemicals and to hazard and risk assessments[8]. OECD is also involved in developing methodologies for risk assessment and risk management to assist government and industry efforts. It developed guidelines for the testing of chemicals and so-called Good Laboratory Practices "to ensure the generation of high quality and reliable test data related to the safety of industrial chemical substances". (OECD[9])

In 1994, following a recommendation of the UN Agenda 21 the World Health Organisation (WHO), the International Labour Organisation (ILO) and UNEP established a joint programme, the International Programme on Chemical Safety (IPCS), which serves as communication forum between governments, intergovernmental organisations and non-governmental organisations. Its aims are "to establish the scientific basis for the safe use of chemicals and to strengthen national capabilities and capacities for chemical safety" (WHO[10]). The programme's main areas of work are evaluating and publishing chemicals assessments; poisons information, prevention and management; chemicals incidents and emergencies; and capacity building. (Wirth 2007b: 401)

Equally resulting from an impetus of the Agenda 21, the Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) was created in 1995. WHO hosts the secretariat and participating organisations include UNEP, OECD, ILO, the UN Food and Agriculture Organisation (FAO), the UN Industrial Development Organisation (UNIDO) and the UN Institute for Training and Research (UNITAP). IOMC describes itself as the "re-eminent mechanism for initiating, facilitating and coordinating international action to achieve the WSSD 2020 goal for sound management of chemicals." (Secretariat of IOMC[11]) It facilitated the development of Globally Harmonised System of Classification and Labelling Requirements (GHS) and introduced voluntary procedures of Prior Informed Consent that contributed to the Rotterdam Convention. (Wirth 2007b: 402)

IOMC and IFCS led to the launch of the Strategic Approach to International Chemicals Management (SAICM), which is a voluntary policy framework to promote chemical safety around the world. UNEP hosts the secretariat. At the World Summit on Sustainable Development (WSSD) in 2002, it was agreed that SAICM should achieve by 2020 that chemicals are produced and used in ways that minimise significant adverse impacts on human health and the environment. The Dubai Declaration on International Chemicals Management sets out objectives grouped in five themes: risk reduction, knowledge and information, governance, capacity-building and technical cooperation, and illegal international traffic. (Secretariat of SAICM[12]) SAICM is expected to facilitate the implementation of legally binding international agreements such as the Rotterdam and the Stockholm Conventions. (Wirth 2007b: 402)

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7 www.chem.unep.ch/default.htm

8 www.oecd.org/document/9/0,3343,en_2649_34379_35211849_1_1_1_1,00.html#Portal

9 www.oecd.org/department/0,3355,en_2649_34365_1_1_1_1_1,00.html

10 www.who.int/ipcs/en

11 www.who.int/iomc/en/

12 www.saicm.org/index.php?menuid=2&pageid=256

3.2 International Agreements

Legally binding international agreements on chemical substances form a conglomeration of different issue-specific treaties. Despite the occasional flaring up of discussions on creating an overarching framework agreement, there was always resistance by major nations that deemed this approach to cumbersome and unfruitful. Krueger and Selin (2002: 337) describe the current system of international chemicals governance as "fragmented coordination". Chemicals are regulated in a few international agreements covering different aspects of the life cycle of chemicals. Depending on how broadly one defines the issue of chemicals policy, one could include agreements addressing specific issues such as industrial accidents or marine pollution. This section, however, only covers international agreements directly linked to chemicals, their production, use, trade and disposal.[13] The production and use of chemicals are addressed by the Stockholm Convention and the POPS Protocol of the Convention on Long-Range Transboundary Air Pollution (CLRTAP). But the Stockholm Convention also covers some elements of trade and disposal. The Rotterdam Convention covers trade in chemical substances, whereas the Basel Convention deals with trade in hazardous waste. The Globally Harmonised System (GHS) introduces a harmonised labelling and classification system facilitating the safe trade in chemicals.

The Stockholm Convention on Persistent Organic Pollutants (POPs) addresses the elimination or reduction of "chemicals that remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife". (Secretariat of the Stockholm Convention[14]) The Convention takes a more holistic approach than the Rotterdam and Basel Conventions. It entered into force in 2004. Parties to the Convention commit to eliminating or reducing the release of POPs into the environment irrespective of whether or not they are subject to international trade. Currently, there are 12 substances covered by the Convention. Further substances can be added following the proposal of parties to the Convention and an evaluation of the Chemicals Review Committee. Most of the 12 substances currently covered had already been regulated by the major industrialised countries prior to the agreement on the Stockholm Convention. However, most developing countries do not possess the capacity to regulate POPs. Therefore, the Convention playes an important role in this regard. It includes pilot programmes for national implementation plans for the management of POPs by developing countries and newly industrialised countries. (Wirth 2007b: 403-4)

Prior to the Stockholm Convention, POPs were already subject to a Protocol under the Convention on Long-Range Transboundary Air Pollution (CLRTAP). This POPs Protocol was concluded by European and North American countries in 1998. Hence, it is only regional in scope. The CLRTAP is a framework convention that currently encompasses a total of eight protocols. CLRTAP POPs' objective is "to eliminate any discharges, emissions and losses of POPs". It bans or severely restricts the production and use of some products. Furthermore, it obliges parties to reduce their emissions of some substances, specifies limits for the incineration of municipal, hazardous and medical waste. (UNECE[15]) The POPs Protocol served as a model for the Stockholm Convention. (Hagen and Walls 2005: 50) Another CLRTAP protocol addresses cadmium, lead and mercury and set emission reduction targets for the parties. (UNECE[16])

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[13] For a more inclusive overview see Wirth 2007b.

[14] http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx

[15] www.unece.org/env/lrtap/pops_h1.htm

[16] www.unece.org/env/lrtap/hm_h1.htm

The Rotterdam Convention focuses on the international trade in certain hazardous substances. It entered into force in 2004. The Convention's objectives are "to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals (…) and to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to parties." (Secretariat of the Rotterdam Convention[17]) The Rotterdam Convention creates legally binding obligations for the Prior Informed Consent (PIC) procedure. This procedure requires the consent of an importing country prior to the import of a substance listed under annex III to the Convention. Exporting countries have to take appropriate measures to ensure compliance by actors within their jurisdiction. (Nanda and Pring 2003: 344) At the moment, there are 39 substances banned or severely restricted, including 11 industrial chemicals (see annex I). The Rotterdam Convention is of particular importance for the communication between developed and developing countries. Each party is required to inform about every national ban or severe restriction. Developing countries have the possibility to inform other parties about problems caused by pesticides that they are experiencing. This reflects the main motivation for the Rotterdam Convention, which is providing assistance to developing countries to control the risk arising from imported chemicals. (Wirth 2007b: 413-4)

As its name discloses, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal mainly covers trade in hazardous waste. It entered into force in 1992. During its first decade, the Convention set up a framework for controlling the transboundary movements of hazardous wastes and developed criteria for "environmentally sound management" (ESM), which aims at minimising hazardous waste production. A control system, based on Prior Informed Consent is the core regulatory instrument. Exporters of hazardous waste must notify the government of the importing country, which has to give its consent in writing. Shipments must be accompanied by a movement document. In 1995, a decision was taken to ban completely hazardous waste shipments for disposal or recycling from OECD to non-OECD countries. The current decade (2000-2010) is dedicated to the implementation and enforcement of treaty commitments. Guidelines for the Convention's activities include "the active promotion and use of cleaner technologies and production methods, further reduction of the movement of hazardous and other wastes, the prevention and monitoring of illegal traffic, the improvement of institutional and technical capabilities (…), further development of regional and subregional centres for training and technology transfer." (Secretariat of the Basel Convention[18]) The Convention has an emphasis on helping developing countries to build capacities to cope with the risk occurring through hazardous waste shipments. (Wirth 2007b: 412-3, Krueger 2001: 43-6)

To enhance the coordination between the Basel, Rotterdam and Stockholm Conventions, an ad hoc working group composed of representatives of parties to the three Conventions was established. This group prepares recommendations to enhance cooperation, which are sent to the conferences of the parties. (Joint website of the Basel, Rotterdam and Stockholm Conventions[19])

In addition to the three major international Conventions and the regional CLRTAP POPS Protocol, the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) was introduced to facilitate the safe trade in chemicals. The

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17 www.pic.int/home.php?type=t&id=5&sid=16

18 www.basel.int

19 http://ahjwg.chem.unep.ch/

Coordinating Group for the Harmonisation of Chemicals Classification, established under the umbrella of the IOMC, developed a harmonised approach out of different national classification and labelling systems. The United Nations Economic and Social Council's Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (UNSCEGHS) formally adopted the GHS. GHS addresses the dangers that can occur in the production, transport and use of chemicals that are traded globally and used in different countries with different regulations and languages. "Once countries have consistent and appropriate information on the chemicals they import or produce in their own countries, the infrastructure to control chemical exposures and protect people and the environment can be established in a comprehensive manner." GHS introduces the classification of chemicals by types of hazard and proposes labels and safety data sheets. It aims at ensuring that information on hazards and toxicity of chemicals be available throughout the supply chain. The first edition of the GHS was published in 2003. The second revised edition was published in 2007. The Basel Convention implemented the GHS in its classification of hazardous waste. (UNECE[20])

These five agreements currently constitute the international framework of chemicals regulation. One additional element may be added in the future. There are activities within UNEP to introduce a legally binding global treaty to tackle mercury pollution. The EU supports a binding global mercury treaty. Until recently, the US, China and India opposed such a move in favour of voluntary approaches[21]. However, in February 2009 the Obama administration reversed the previous US position and supports the taking up of negotiations for a new global treaty to control mercury pollution[22].

4 A Potential International Contribution of REACH?

To discuss the first part of the central question of this paper – Could REACH play a role in international chemicals governance? – this section discusses whether there could be an international role for REACH whereas the subsequent section 5 turns to the question of how REACH could influence international chemicals governance.

REACH could play a role in complementing the system of international chemicals governance. The international system of chemicals governance addresses some crucial aspects of chemicals management but it does not provide for a comprehensive and ambitious framework. In the past, there were some initiatives for creating a comprehensive framework convention on chemicals, which would combine the fragmented approaches of the different existing agreements. In the 1990s there were some discussions and proposals for a global chemicals framework in Europe. Yet, the opposition of the US to this proposal led to the stalling of the debate. The US argued that the negotiation of a general framework would be too lengthy and it would take too much time until measures on chemicals management would become effective. In 1999, this proposal was brought up again at the UNEP Governing Council. However, it did not result in concrete activities. (Krueger and Selin 2002: 327-8, 338-9, Nanda and Pring 2003: 345) With the current system of international agreements, it may have become too cumbersome to integrate them into one framework. The various agreements have different memberships and cover different chemicals at different stages of the life cycle. Therefore, it may be more fruitful to concentrate on strengthening the current system of fragmented coordination. (Krueger and Selin 2002: 339) REACH could assist in this process by contributing to

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[20] www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html

[21] ENDS Daily: "Pressure for global binding mercury treaty rising", 6 February 2009

[22] ENS: "Obama Shifts U.S. Policy to Back Global Mercury Control Treaty" 16 February 2009

remedying some of the shortcomings of the current system of international chemicals governance. The following paragraphs provide some thoughts on the *potential* contribution of REACH to international chemicals governance.

Generation of Information

REACH could contribute comprehensive sets of data on intrinsic properties, hazards and risks to the work of international organisations. Voluntary programmes by international organisations are concerned with information gathering and dissemination, capacity building and communication of best practices. However, for a large number of chemicals there is still not sufficient data on hazards and risks available. Very few chemicals that are currently used in industrial processes have been thoroughly tested as to their toxicity for human health and their negative impacts on the environment. (Wirth 2007b: 399) International organisations have so far not been able to address that lack because they mostly pool information generated by other sources. And national regulation appears to have failed gathering sufficient data on hazards and risks presented by chemicals that could be contributed to the international databases and coordination efforts. REACH has the potential to contribute to addressing this lack of data. It will generate and make available a large body of information on chemical substance, not only on their intrinsic properties but also on their uses and risks.

Comprehensive Scope

REACH could contribute to the regulation and safe management of chemical substances beyond the scope of international agreements. Legally binding international agreements form a conglomeration of issue-specific treaties that address different stages of the chemicals life cycle and that are coordinated with each other. But they only cover a limited number of substances. As shown in annex I, some chemicals are covered by all agreements and some others are only addressed by one or two. On total the number of substances covered is relatively small. In contrast to this, REACH takes a more comprehensive approach. It covers all chemical substances put on the EU market in quantities over 1t per year per producer. Hence, it could provide assessments and regulation of substances beyond the scope of what is currently addressed by the different international agreements. Section 5 describes how these assessments and regulation could spread to other jurisdictions and the international level.

Flexible and Fast Procedures

REACH could provide restrictions and authorisation of particular uses of chemicals faster than the international agreements. The process of changing the requirements of international agreements and, for example, adding new substances to the Stockholm Convention is very lengthy. (Vanden Bilcke 2002:338-9) Negotiations and consensus finding between a large number of different parties can prove difficult. The process of restricting and authorising the use of chemicals under REACH is potentially more flexible and faster than changing international agreements.

Ambitious Objectives

REACH could introduce more ambitious requirements of chemicals management than currently addressed by international framework. The international chemicals agreements have a strong element addressing problems of developing countries. This is an important aspect since these countries are in particular need of technical and regulatory assistance with regard to chemicals management. Industrialised countries have, in many cases, already had some regulation in place that set domestic safety standards similar to the ones set by the international agreements. However, in order to avoid double standards of what is allowed to be put on the domestic market and what is allowed to be exported to developing countries,

agreements such as the Basel, Rotterdam and Stockholm Conventions have played an important role. (Wirth 2007b: 412) REACH set more ambitious objectives that provided by the international framework. It introduces rigorous data and testing requirements. Therefore, REACH is often portrayed as the worldwide most ambitious and sophisticated piece of chemicals regulation. (Wirth 2007a: 100) REACH could contribute a more ambitious approach to chemicals management reflecting the needs of industrialised nations, which exceed the level of ambitions introduced by international agreements.

REACHing out to Others

REACH could influence chemicals management in jurisdictions that are not parties to the international agreements. Annex II lists all countries that have ratified, accepted and approved the different international agreements. The United States of America, for example, only implemented the GHS but did not ratify the other agreements. REACH could reach out to jurisdictions that chose not to be part of international agreements.

5 How to REACH out?

As argued in the previous section, REACH could potentially make a manifold contribution to international chemicals governance. This contribution could be realised through the diffusion and direct impact of REACH provisions on other jurisdictions. Policy diffusion is a set of voluntary transfers of policy from one political entity to another. (Joergens 2004, Busch and Joergens 2005) In addition to influencing public policy-making, REACH also has a direct impact on private actors in third jurisdictions, if they are exporters to the EU. Hence, REACH can influence private actors as well as decision-makers in third countries and potentially contribute to a shift in chemicals management internationally. This section outlines the three ways in which REACH could influence chemicals management in third countries. Through economic interdependence in the highly globalised chemicals sector, REACH requirements could have a direct impact on third country companies. Other jurisdictions could decide to learn from the EU experience and introduce similar policies. And, in the long run, REACH could lead to the international acceptance of certain norms related to its ambitious objectives, which could trigger emulation processes or the extension of international agreements. These three channels of possible influence are outlined below.

5.1 Influence through Economic Interdependence

The chemicals sector is highly globalised and international trade in chemicals is significant. Furthermore, many sectors using chemicals in their production processes and in their products are also global in nature with strong trade links between the EU and other parts of the world. Such sectors are for example electronics, toys, cosmetics and textile industries.

Given this high degree of economic interdependence, REACH could influence chemicals production and their use in the manufacturing of products in non-EU jurisdictions in five different ways. First, the EU only grants access to its market to actors that comply with REACH requirements. Second, changes in the production for the EU market could trigger the application of these requirements in the whole supply chain of a company. Third, third country governments could try to ensure their domestic industry's competitiveness and preparedness by introducing policy similar to REACH. Fourth, the enhanced risk communication in the supply chain could lead to improvements in minimising risks from chemicals. And fifth, the proliferation of information could be an incentive for companies to change their production or use of chemicals due to the potential for liability claims.

Market Access

Through the control of access to its market, the EU has a certain direct impact on manufacturing in third countries. The EU only grants access to its market to actors that comply with REACH requirements. Imported chemicals have to comply with the same requirements as EU-produced chemicals. Importers have to fulfil the registration requirements and are subject to the same evaluation and possibly restriction and authorisation procedures. Furthermore, Article 7 of the REACH Regulation specifically addresses products that contain chemicals. As of December 2011, manufacturers and importers of products will have to notify the agency of substances of very high concern (SVHC) contained in their products. Substances that are intentionally released from articles have to be registered according to the regular registration schedule. Article 7 was introduced in order to level the playing field between companies producing their products within the EU and non-EU producers. (Hansen and Blainey 2008: 123-4) Hence, policy requirements are transferred through international product and service flows. And REACH directly shapes activities of companies operating beyond its borders.[23]

Economies of Scale

Changes in the production process for the EU market could trigger the application of these requirements in the entire global supply chain of a company. Considerations about economies of scale could incite multinational companies to apply policy requirements that were introduced by the EU to their global operations. The reason for this is that for multinational companies it could 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 caused by maintaining different parallel production lines. Hence, one single supply chain and production method could bring economies of scale and simplify procedures. 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 gloabl impact. (Vogel and Kagan 2002: 6)

However, this logic only applies to jurisdictions with a market attractive enough for the respective industry. Given the size of the EU market for chemicals and products containing chemicals, companies would most likely not withdraw from their activities but rather adjust their operations. Hence, REACH could have a big leverage to influence multinational companies' operations.

[23] However, during the legislative procedure leading to the adoption of the REACH Regulation, there were some concerns raised about the fair and equal treatment of EU and non-EU companies. Different actors claimed that REACH was a non-tariff barrier to trade, which discriminates certain actors. The argument has been made that REACH discriminates against importers of preparations because third country suppliers do not have to comply with REACH requirements, which gives an advantage to EU-based suppliers that are required to comply with REACH. But the opposite argument that REACH discriminates against EU manufacturers was also made. It was claimed that manufacturers in the EU are much more restricted in the use of chemicals in their manufacturing process in cases in which the used chemical is not present in the final product anymore. (AmCham EU, Cefic and FECC 2004) The EU argues that REACH is a WTO-compliant barrier to trade since it does not discriminate certain actors but creates a level playing field. WTO rules allow for trade-restricting measures for environmental purposes. And so far, there were no challenges of the REACH Regulation in the WTO and this does not seem to be expected. (Interview with representatives of the EU chemicals industry, 19 January 2009)

Domestic Preparedness and Competitiveness

Third country governments could try to ensure their domestic industry's competitiveness and preparedness for compliance with REACH by introducing policy initiatives similar to REACH. Policy-makers could want to prepare their domestic industry for international competition as part of a supply chain or for the export of substances and products. This could be an incentive to introduce policy similar to the REACH Regulation. The response could however also be non-legislative measures such as awareness-raising and voluntary codes of conduct.

Business could also take initiative and put pressure on national governments to adopt the ambitious standards set by REACH. They could try to avoid loosing out on competition in markets where lower chemicals management requirements apply. By lobbying for higher standards, a level playing field with other domestic producers would be created. Companies that complied at an early stage with REACH-like requirements would then have a competitive advantage because they would be well prepared for compliance and could sell their knowledge and technologies to others. This way of influence is especially relevant in highly globalised sectors with significant supply chain linkages such as most of the sectors covered by REACH. And it mostly applies to cases in which the pioneer jurisdiction has a significantly big market for the product that it sets standards for. This is also given for REACH. (Vogel 1997: 561-3, Porter and van der Linde 1995)

Communication in the Supply Chain

The increase of risk communication in the supply chain that will evolve as a result of REACH could lead to improvements in minimising and managing risks presented by chemicals. REACH will change risk communication throughout supply chains since it requires that information related to health, safety and environmental properties, to risks and to the management of potential risks are passed up and down the supply chain. (European Commission 2007: 10) This is an important element for effective chemicals management. So far, most companies do not posses much data about the use and handling of chemicals in their supply chains. (Tickner, Geiser and Coffin 2005: 120) REACH is therefore likely to affect the assessment and use of chemical substances not only within European borders but also beyond because many supply chains are international. The information generated through REACH could help companies to make their use and handling of chemicals more efficient and less harmful to human health and the environment. Already now, some multinational companies maintain lists of certain chemicals that they voluntarily ban from their products. REACH could enhance this trend.

Liability

The international proliferation of information on chemical substances could provide the basis for liability claims. Under REACH, producers of articles containing SVHC are required to provide information on a product's toxicity on demand by a consumer. Furthermore, through the registration and evaluation of chemicals a large amount of data will be become publically available. REACH could have an impact on chemical manufacturers in countries with liability-based risk management systems. Information on a potential risk that becomes available through REACH could be used against a manufacturer making the company accountable for this potential risk. (Hey, Jacob and Volkery 2007: 1864)

5.2 Learning from the EU Experiences

In addition to the diffusion of REACH-related requirements through economic interdependence, third countries could learn from the EU experience. REACH could provide a blueprint for initiatives in other jurisdictions. And the information on

chemical properties and risks could contribute to improve domestic regulation in third countries. REACH could trigger debates about chemicals regulation in third countries and raise the visibility of the issue in the political arena.

The final outcome of a learning process will most likely not be a copy of REACH but it will rather contain some elements of it and the degree of similarity can differ. Legislation as a result of policy learning depends upon domestic variables, such as the prevailing policy paradigm, institutions and rules, existing policy, resources available and support by advocacy groups. REACH-like legislation in other jurisdictions could hence be expected to be informed by REACH but to reflect domestic variables. It could represent a reform of domestic regulation or the introduction of new regulation adapted to domestic circumstances. (Tews and Busch 2002: 171)

Introduction of New Policy Elements

Policy-makers could learn from the REACH experience and introduce similar requirements because 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 already made than to invent and design a completely new solution, which has never been tested in practice before. Especially in the case of complex chemicals regulation, learning from other political entities could be an efficient alternative for political entities, not only for the ones with limited resources. (Tews and Busch 2002: 180, Dolowitz 2000: 13) Decision-makers could obtain studies and information concerning REACH relatively easily. 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) Given the complexity of a comprehensive chemicals policy, it could be expected that other jurisdictions study REACH before introducing their own chemicals regulation. If REACH demonstrates that it addresses chemicals management effectively, decision-makers would be provided with a powerful argument in favour of doing likewise.

Contributing to Existing Regulation

Furthermore, not only REACH itself but also the information that is produced through REACH could influence other jurisdictions and their existing chemicals regulation. The data on intrinsic properties and uses of chemical substances could trigger learning processes by other jurisdictions in the way that they could use the information provided through REACH to inform their already existing legislative framework. Currently, for existing chemicals there is a lack of information about hazards and risks globally. (Koch and Ashford 2006: 44-5) Therefore, jurisdictions could have legislation in place, which however is not very effective due to the lack of information. Hence, the data gathered through REACH could be used by other decision-makers to further develop their already existing laws and make use of existing provisions to regulate additional substances.

Active Promotion

The availability and accessibility of information about REACH could be a key prerequisite for triggering learning processes. Some political entities send delegations abroad to innovative and advanced countries with the specific aim of learning from their experience with particular policies. They meet a variety of stakeholders and gather information on how a certain problem is tackled and how the successful policy measures are designed and implemented. Hence, the provision of information about REACH could be an important element supporting policy diffusion via learning. (Joergens 2004: 252) The EU appears to have acknowledged this. It actively promotes REACH internationally. The White Paper on the Strategy for a

Future Chemicals Policy explicitly mentions that REACH should influence international debates on chemicals management (European Commission 2001: 9).

Moreover, international organisation could play an active role in facilitating learning processes. The data produced through REACH and information on REACH itself could be included in the activities of international organisations. As described in section 3, organisations such as UNEP and OECD operate chemicals programmes that gather and disseminate state-of-the-art information on chemicals and promote safe chemicals management internationally. Furthermore, they collect best practice information, provide benchmarks, produce policy papers, promote certain policies, set agendas and create common discourses. Hence, international organisations could play an important role in fostering the diffusion of REACH requirement and information. (Tews and Busch 2002: 170, Kern, Joergens and Jaenicke 2001)

5.3 Shaping International Norms

In the long run, REACH could lead to the international acceptance of certain norms related to its ambitious objectives, which could trigger emulation processes or the extension of international agreements. At this point in time, such developments are not expected to take place yet.

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 experience in another political entity. It rather involves following international trends in policy-making. Decision-makers could decide to emulate REACH because the EU is a respected and trusted actor. REACH would then be considered a good and suitable solution without deeper own assessment. Additionally, legitimacy considerations could be another 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 might consider following this trend for symbolic reasons. A dynamic could evolve that incites political entities to introduce REACH in order to boost their own image, reputation and credibility in the international community. In that case, the policy is introduced on symbolic grounds to avoid being considered a laggard. (Meseguer 2006: 172, Brooks 2007: 704, Tews, Busch and Joergens 2003: 572-5, Drezner 2001: 57)

International Norms

Political entities could also act in response to internationally evolved and commonly accepted norms triggered by REACH. 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 principles of chemicals management and in the development of commonly agreed norms. Political actors that share the same norms are likely to assess different situations and problems in a similar way. Therefore, they are inclined to consider the same kinds of policy solutions to a given problem. This could enhance the diffusion of REACH 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. (Finnemore and Sikkink 1998: 894-909)

6 First Signs of a Global REACH?

REACH appears to have the potential ability to shape chemicals policy internationally. But are there already signs of an influence today? The following section, applies the conceptual considerations elaborated above to the cases of the United States of America and California. It provides some indications for possible diffusion. Only economic interdependence and learning are considered since diffusion via international norms is a rather long-term process, which could not have evolved yet.

6.1 United States of America

Economic Interdependence

The US is the main trading partner of the EU in chemical products. Ackerman, Stanton and Massey (2006: 1) estimate that US chemicals exports to the EU that are subject to REACH amount to $ 13.7 billion per year and are directly and indirectly accounting for some 54,000 jobs[24]. About 6% of all US chemicals output is exported to the EU. Moreover, this industry sector has grown in recent years and is expected to grow further. In addition, there is a large number of exports of products containing chemical substances to the EU. (Ackerman, Stanton and Massey 2006: 4-6) Failing to comply with REACH would be an important loss to a growing industry sector of the US economy. Gains generated through these exports are expected to outweigh by far the costs for compliance with REACH. (Ackerman, Stanton and Massey 2006: 10)

From this strong economic interdependence between the US and the EU with regard to chemicals and chemicals-related products, it could be concluded that REACH will have a significant direct influence on the US. Considering the trade figures above, a significant number of US chemicals and product manufacturers will have to comply with REACH in order to continue to be able to access the EU market. Many US-based chemicals and product manufacturers affected by the REACH Regulation are multinational companies. It could be expected that some of them may consider changes in their whole supply chain due to economies of scale considerations. American companies and trade associations follow EU legislation closely and, overall, they are well prepared to comply with REACH[25]. The increased risk communication in the supply chain could affect chemicals management also in US companies and supply chains. Since the US system is based on a liability risk management, new data on intrinsic properties and risks presented by chemicals made publically available through REACH could have a big impact on US companies and trigger a change in their practices and operations. Hence, economic interdependence bears a high likelihood for direct influence of REACH on chemicals management in the US.

Learning

The US has had a chemicals law in place since 1972, which however has not been very effective in regulating chemicals because of a lack of power of the EPA. The Toxic Substances Control Act (TSCA) confers to the Environmental Protection Agency (EPA) the rights to issue regulations addressing risks from existing chemicals, to require testing of new or existing substances if they may present an unreasonable risk and to issue rules that oblige industry to collect information on production and uses. [26] Furthermore, new chemicals have to be notified to EPA before they can be put on the US market. EPA can ask for further testing of these

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[24] Based on 2004 figures.

[25] Interview with lawyer representing non-EU-based companies, 21 January 2009

[26] www.epa.gov/lawsregs/laws/tsca.html

chemicals if deemed necessary. All chemicals on the US market are in the Inventory of Chemical Substances (ICS), which contains about 70.000 chemicals. On proposal by the Interagency Testing Committee (ITC), EPA can require tests of existing chemicals from industry. However, since 1976, only 82 chemicals have been tested.[27] Only few substances have been banned or restricted under TSCA because for EPA the burden to act under TSCA is very high[28]. To restrict the production and use of an existing chemical, EPA has to prove, first, that this chemical will present an unreasonable risk, second, that the restrictive regulation is the least burdensome to reduce the risk to a reasonable level, and, third, that the benefits of the regulation outweigh the costs. As a consequence of this high burden and an unsuccessful attempt to ban asbestos that was overturned by a court, EPA has not started many restriction procedures. Under TSCA, EPA effectively lacks the power to regulate existing chemicals. For new chemicals EPA has developed effective methods to assess chemicals before they obtain the permission to enter the market. However, these methods were only applied to less than 1% by volume of the chemicals on the market. (Tickner, Geiser and Coffin 2005: 116-7, Geiser and Tickner 2003)

REACH could contribute to existing US chemicals regulation by triggering a learning process through the chemicals data that will be made available. One of the reasons why TSCA has not let to more restrictions and bans or substance is the lack of data[29]. EPA needs to prove that a chemical will present an unreasonable risk. For this a large amount of data on properties, manufacturing and use is necessary. But, EPA can only request more data from industry for specific chemicals once it has demonstrated that the substance may present such an unreasonable risk. (Tickner, Geiser and Coffin 2005: 117-8) This 'catch-22' situation – EPA cannot request further data because it does not have initial data to prove that there may be a risk – could be mitigated by REACH. In the process of REACH, a large amount of data on properties, risks and hazard of chemical substances will be produced and made available. This information will also be accessible to EPA, which could possibly make use of this data to start restriction procedures under §6 of TSCA.

Furthermore, there are vague signs of learning from REACH. The US EPA is planning to introduce substance assessment procedures that have similarities with the REACH Regulation and in Congress a debate has started. Within the so-called "Chemical Assessment and Management Program" (ChAMP) the US EPA plans to assess approximately 6,750 chemicals and to introduce restrictions where necessary. The scope of the programme covers all substances with production above 11.3 tonnes[30] per year in the US. ChAMP aims at fully assessing chemicals in order to identify possible needs for measures to control risk. These measures can be voluntary or legislative. It does not entail any registration requirements. (EPA ChAMP

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[27] www.epa.gov/oppt/chemtest/pubs/summarylist.htm

[28] For a list of all proposed or final control actions using TSCA §6 authority to restrict or ban the manufacture and use of chemicals, see EPA 2003: 22, available at www.chemicalspolicy.org/usfederal.shtml. There have been measures on halogenated chlorofluoralkanes, PCBs, dioxin-contaminated waste, metalworking fluids, asbestos, hexavalent chromium, chlorine and chlorine derivative bleaching, acrylamide/–methylacrylamide grouts and lead fishing sinkers.

[29] In addition to TSCA, there is the Toxic Release Inventory (TRI), which is part of the Emergency Planning and Community Right-to-Know Act (EPCRA). It requires certain manufacturers to notify the releases and transfers to air, water and land of certain chemical substances. However, the amount of data gathered is rather limited. Currently, there are about 650 chemicals in the inventory and reported releases are about 6-7% of all chemical releases. The purpose of TRI is only informational. (Koch and Ashford 2006: 41-3)

[30] 25,000 lb/year

website[31]) Furthermore, the US House of Representatives Subcommittee on Commerce, Trade and Consumer Protection started a debate on the revision of TSCA. On 26 February 2009, it held a first oversight hearing on the issue.[32]

6.2 California

Economic Interdependence

California is one of the US states with the largest export of chemicals that are covered by REACH. In 2004, chemicals shipments to the EU amounted to $ 971 million and were directly and indirectly responsible for 6,330 jobs. (Ackerman, Stanton and Massey 2006: 6-7) In 2007, computers and electronic products, many of which could be covered by the REACH obligation to register substances for intended release or to notify SVHC contained in those products, amount to 40.8% of California's overall exports in manufactured goods to the EU. Chemicals exports were 13.4% of Californian shipments in manufactured goods to the EU.[33] From this strong economic interdependence between California and the EU the same conclusions as for the entire US, as discussed above, could be drawn. REACH will have a significant impact on chemicals and product manufacturing in California.

Learning

California recently enacted new legislation that suggests to be the result of a learning process from the EU. Despite not being a nation state, California has significant legislative power in many areas of environmental policy-making. Furthermore, California has traditionally been at the forefront of setting ambitious environmental standards within the US and globally. (Vogel 1997: 561-2) In October 2008, California enacted new legislation that is considered the first step to a comprehensive chemicals policy. Assembly Bill No. 1879 tasks the Californian EPA "to adopt regulations to establish a process by which chemicals or chemical ingredients in products may be identified and prioritized for consideration as being chemicals of concern" and " to establish a process by which chemicals of concern in products, and their potential alternatives, are evaluated to determine how best to limit exposure or to reduce the level of hazard" by 1 January 2011. This text has similarities with the REACH system. Yet, the provisions of Assembly Bill No. 1879 are rather vague and it depends on the implementation regulation adopted by EPA which form and scope the regulation will have and also how stringent the measures will be. The Californian EPA is following developments with regard to REACH closely and states this on its website[34]. And from an interview with a representative of the Californian EPA it can be concluded that the measures will be ambitious and inspired by the REACH experience. [35]

Ambitious Californian chemicals regulation could increase the international influence of REACH-like requirements, enhance innovation and influence US federal policy. California appears wanting to take the lead in the US with regard to more

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[31] www.epa.gov/champ

[32] http://energycommerce.house.gov/index.php?option=com_content&task=view&id=1505&Itemid=95

[33] Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce: http://tse.export.gov/SEDChartDisplay.aspx?UniqueURL=yhmskt55kf5nwr3dhbowyo55-2009-2-8-8-19-40

[34] www.dtsc.ca.gov/PollutionPrevention/GreenChemistryResources/index.cfm#How_is_DTSC_promoting_green_chemistry?

[35] Interview with representatives of the Californian Environmental Protection Agency, 2 February 2009

comprehensive and ambitious chemicals policy. If it would succeed in implementing chemicals regulation similarly comprehensive and ambitious to REACH, this would enhance the international impact of such requirements through economic interdependence since California is a significant import and export market for substances and products covered by REACH. Furthermore, this could enhance innovation for safer chemicals if California-based manufacturers would also increase their investments in R&D in this area. As in other incident, California could also push US federal legislation into a similar direction as it has done before on other policy issues such as car emissions. (Vogel 1997: 561-2)

7 Conclusions

The REACH Regulation introduces more comprehensive and more ambitious rules for the management of chemical substances than current efforts at the international level. REACH introduces a new system that gives more responsibility to private actors, that aims at encouraging more innovation, that takes a risk-based approach and that could lead to more anticipatory activities in chemicals management. At the international level, there are different legally binding agreements with varying memberships addressing different stages of the life cycle of chemicals. Additionally, there are a number of voluntary initiatives by various international organisations concerned with information pooling, capacity building and international cooperation. This system of international chemicals governance has not been able to address the lack of information on the toxicity of many chemicals for human health and the environment. It only addresses a small number of very dangerous substances leaving many other potentially risky chemicals unaddressed.

There could be a mutual supplementation of international chemicals initiatives and the diffusion of REACH provisions. On the one hand, REACH could complement international activities through the diffusion of its ambitious requirements and the data that it will produce. Diffusion could potentially happen faster than the international negotiation procedure and create facts that facilitate consensus finding for a later international agreement. (Tews and Busch 2002: 168) Policy diffusion could also potentially reach a very broad scope of countries, including jurisdictions that are not part of current international agreements. On the other hand, international organisations could foster and enhance the diffusion process and, at a later stage, legally binding international agreements could institutionalise some of the REACH provisions. Furthermore, international agreements play an important role in taking particular account of the situation of developing countries and in providing a certain ‘baseline’ degree of safe international chemicals management.

The brief discussion of the cases of the United States and California has shown that there are already some indications that REACH has started to ‘reach out’ to other jurisdictions and it appears that this process will continue in the future. A more in-depth analysis should be conducted to further study these developments, including a larger number of diverse jurisdictions.

This paper has shown that REACH has the potential to play a significant role in international chemicals governance through the diffusion of its provisions and the data generated. This process has already started, as demonstrated by the example of the US and California. But it will greatly depend on the EU itself whether and to what degree REACH can realise this potential. The implementation of REACH in the upcoming year will be of crucial importance for this. It depends on the effective use, dissemination and evaluation of the data that will be reported to Echa and on the effectiveness of the authorisation and restriction procedures.

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CLRTAP Protocol on Heavy Metals: www.unece.org/env/lrtap/hm_h1.htm

European Chemicals Agency website: http://echa.europa.eu/

European Commission REACH website: http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

OECD Chemicals Portal: www.oecd.org/document/9/0,3343,en_2649_34379_35211849_1_1_1_1,00.html#Portal

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Secretariat of the Rotterdam Convention: www.pic.int/home.php?type=t&id=5&sid=16

Secretariat of the Stockholm Convention: http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx

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WHO IPCS website: www.who.int/ipcs/en

Annex I – Substances covered by Different International Agreements

LRTAP POPs Protocol	Stockholm Convention	Rotterdam Convention	Basel Convention[36]
		2,4,5-T	
		1,2-dibromoethane (EDB)	
			Arsenic
		Actinolite (Asbestos)	Asbestos
Aldrin	Aldrin	Aldrin	POPs
		Amosite (Asbestos)	Asbestos
		Anthophyllite (Asbestos)	Asbestos
		Binapacryl	
			Cadmium
			Chromium
			Clinical wastes
			Cyanide
		Captafol	
Chlordane	Chlordane	Chlordane	POPs
Chlordecone			POPs
		Chlordimeform	
		Chlorobenzilate	
		Crocidolite (Asbestos)	Asbestos
DDT	DDT	DDT	POPs
Dieldrin	Dieldrin	Dieldrin	POPs
Dioxins	Dioxins		
		Dinitro-ortho-cresol (DNOC)	
		Dinoseb	
		Dustable powder formulations containing a combination of benomyl, carbofuran, thiram	
Endrin	Endrin		POPs

[36] The Basel Convention does not address specific substances but 'hazardous waste'. Waste is defined as hazardous if it belongs to one of the categories listed in annex I and expose certain characteristics as outlined in annex III of the convention. This list is taken from "A Simplified Guide to the Basel Convention" published by the Secretariat of the Basel Convention and based on substances mentioned in annex I. It is only intended for general illustration purposes.

		Ethylene dichloride	
		Ethylene oxide	
		Fluoroacetamide	
Furans	Furans		POPs
HCH (including lindane)		HCH (mixed isomers)	POPs
Heptachlor	Heptachlor	Heptachlor	
Hexaclorobenzene	Hexachlorobenzene	Hexachlorobenzene	POPs
Hexabromobiphenyl			POPs
		Lindane	POPs
			Lead
		Mercury compounds	Mercury
		Methamidophos	
		Methyl-parathion	
Mirex	Mirex		POPs
		Monocrotophos	
PAHs			POPs
		Parathion	
		Pentachlorophenol	
		Phosphamidon	
		Polybrominated biphenyls (PBB)	PBBs
PCBs	Polychlorinated biphenyls (PCBs)	Polychlorinated biphenyls (PCB)	PCBs
		Polychlorinated terphenyls (PCT)	PCTs
		Tetraethyl lead	
		Tetramethyl lead	
Toxaphene	Toxaphene	Toxaphene	POPs
		Tremolite (Asbestos)	
		Tris (2,3-dibromopropyl) phosphate	
			Strong acids & alkalis

Annex II – Countries that Ratified / Approved / Accepted / Acceded the Different International Agreements

	LRTAP POPs Protocol	**Stockholm Convention**	**Rotterdam Convention**	**Basel Convention**	**Globally Harmonised System**[37]
1.	Austria	Albania	Argentina	Albania	Argentina
2.	Belgium	Algeria	Armenia	Algeria	Australia
3.	Bulgaria	Angola	Australia	Andorra	Austria
4.	Canada	Antigua and Barbuda	Austria	Antigua and Barbuda	Belgium
5.	Croatia	Argentina	Belgium	Argentina	Bolivia
6.	Cyprus	Armenia	Belize	Armenia	Brazil
7.	Czech Republic	Australia	Benin	Australia	Brunei Darussalam
8.	Denmark	Austria	Bolivia	Austria	Bulgaria
9.	Estonia	Azerbaijan	Brazil	Azerbaijan	Cambodia
10.	Finland	Bahamas	Bosnia and Herzegovina	Bahamas	Canada
11.	France	Bahrain	Botswana	Bahrain	Chile
12.	Germany	Bangladesh	Bulgaria	Bangladesh	China
13.	Hungary	Barbados	Burkina Faso	Barbados	Cyprus
14.	Iceland	Belarus	Burundi	Belarus	Czech Republic
15.	Italy	Belgium	Cameroon	Belgium	Denmark
16.	Latvia	Benin	Canada	Belize	Ecuador
17.	Liechtenstein	Bolivia	Cape Verde	Benin	Estonia
18.	Lithuania	Botswana	Chad	Bhutan	European Union and European Economic Area
19.	Luxembourg	Brazil	Chile	Bolivia	Finland
20.	Netherlands	Bulgaria	China	Bosnia & Herzegovina	France
21.	Norway	Burkina Faso	Colombia	Botswana	Gambia
22.	Republic of Moldova	Burundi	Congo	Brazil	Germany
23.	Romania	Cambodia	Cook Islands	Brunei Darussalam	Greece
24.	Slovakia	Canada	Côte d´Ivoire	Bulgaria	Hungary
25.	Slovenia	Central African	Cuba	Burkina Faso	Iceland

[37] In the case of the GHS, one speaks of implementation of the system.

		Republic			
26.	Sweden	Chad	Croatia	Burundi	Indonesia
27.	Switzerland	Chile	Cyprus	Cambodia	Ireland
28.	United Kingdom of Great Britain and Northern Ireland	China	Czech Republic	Cameroon	Italy
29.	European Community	Colombia	Democratic People's Republic of Korea	Canada	Japan
30.		Comoros	Democratic Republic of the Congo	Cape Verde	Lao People's Democratic Republic
31.		Congo, Democratic Republic of the	Denmark	Chad	Latvia
32.		Congo, Republic of the	Djibouti	Central African Republic	Liechtenstein
33.		Cook Islands	Dominica	Chile	Lithuania
34.		Costa Rica	Dominican Republic	China	Luxembourg
35.		Côte d´Ivoire	Ecuador	Colombia	Madagascar
36.		Croatia	El Salvador	Comoros	Malaysia
37.		Cuba	Equatorial Guinea	Congo (Republic of the)	Malta
38.		Cyprus	Eritrea	Cook Islands	Mauritius
39.		Czech Republic	Estonia	Costa Rica	Mexico
40.		Denmark	Ethiopia	Côte d'Ivoire	Myanmar
41.		Djibouti	European Community	Croatia	Netherlands
42.		Dominica	Finland	Cuba	New Zealand
43.		Dominican Republic	France	Cyprus	Nigeria
44.		Ecuador	Gabon	Czech Republic	Norway
45.		Egypt	Gambia	Democratic Republic of Congo	Paraguay
46.		El Salvador	Germany	Denmark	Philippines
47.		Eritrea	Georgia	Djibouti	Poland
48.		Estonia	Ghana	Dominica	Portugal
49.		Ethiopia	Greece	Dominican Republic	Republic of Korea
50.		European Community	Guinea	Ecuador	Romania

51.		Fiji	Guinea-Bissau	Egypt	Russian Federation
52.		Finland	Guyana	El Salvador	Senegal
53.		France	Hungary	Equatorial Guinea	Serbia
54.		Gabon	India	Eritrea	Singapore
55.		Gambia	Iran (Islamic Republic of)	Estonia	Slovakia
56.		Georgia	Ireland	Ethiopia	Slovenia
57.		Germany	Italy	European Community	South Africa
58.		Ghana	Jamaica	Finland	Spain
59.		Greece	Japan	France	Sweden
60.		Guatemala	Jordan	Gambia	Switzerland
61.		Guinea	Kazakhstan	Georgia	Thailand
62.		Guinea-Bissau	Kenya	Germany	United Kingdom
63.		Guyana	Kuwait	Ghana	United States of America
64.		Honduras	Kyrgyzstan	Greece	Uruguay
65.		Hungary	Latvia	Guatemala	Viet Nam
66.		Iceland	Liberia	Guinea	Zambia
67.		India	Lebanon	Guinea-Bissau	
68.		Iran (Islamic Republic of)	Lesotho	Guyana	
69.		Jamaica	Libyan Arab Jamahiriya	Honduras	
70.		Japan	Liechtenstein	Hungary	
71.		Jordan	Lithuania	Iceland	
72.		Kazakhstan	Luxembourg	India	
73.		Kenya	Madagascar	Indonesia	
74.		Kiribati	Malaysia	Iran (Islamic Republic of)	
75.		Korea, Democratic People´s Republic of	Maldives	Ireland	
76.		Korea, Republic of	Mali	Israel	
77.		Kuwait	Marshall Islands	Italy	
78.		Kyrgyzstan	Mauritania	Jamaica	
79.		Lao People´s Democratic	Mauritius	Japan	

		Republic			
80.		Latvia	Mexico	Jordan	
81.		Lebanon	Mongolia	Kazakhstan	
82.		Lesotho	Namibia	Kenya	
83.		Liberia	Nepal	Kiribati	
84.		Libyan Arab Jamahiriya	Netherlands	Kuwait	
85.		Liechtenstein	New Zealand	Kyrgyzstan	
86.		Lithuania	Nicaragua	Latvia	
87.		Luxembourg	Niger	Lebanon	
88.		Madagascar Maldives	Nigeria	Lesotho	
89.		Mali	Norway	Liberia	
90.		Marshall Islands	Oman	Libyan Arab Jamahiriya	
91.		Mauritania	Pakistan	Liechtenstein	
92.		Mauritius	Panama	Lithuania	
93.		Mexico	Paraguay	Luxembourg	
94.		Micronesia (Federated States of)	Peru	Madagascar	
95.		Moldova, Republic of	Philippines	Malawi	
96.		Monaco	Poland	Malaysia	
97.		Mongolia	Portugal	Maldives	
98.		Morocco	Qatar	Mali	
99.		Mozambique	Republic of Korea	Malta	
100.		Myanmar	Republic of Moldova	Marshall Islands	
101.		Namibia	Romania	Mauritania	
102.		Nauru	Rwanda	Mauritius	
103.		Nepal	Samoa	Mexico	
104.		Netherlands	Saudi Arabia	Micronesia (Federated States of)	
105.		New Zealand	Senegal	Monaco	
106.		Nicaragua	Singapore	Mongolia	
107.		Niger	Slovakia	Montenegro	
108.		Nigeria	Slovenia	Morocco	
109.		Niue	South Africa	Mozambique	
110.		Norway	Spain	Namibia	

111.		Oman	Sri Lanka	Nauru	
112.		Pakistan	Sudan	Nepal	
113.		Panama	Suriname	Netherlands	
114.		Papua New Guinea	Sweden	New Zealand	
115.		Paraguay	Switzerland	Nicaragua	
116.		Peru	Syrian Arab Republic	Niger	
117.		Philippines	Thailand	Nigeria	
118.		Poland	Togo	Norway	
119.		Portugal	Uganda	Oman	
120.		Qatar	Ukraine	Pakistan	
121.		Romania	United Arab Emirates	Panama	
122.		Rwanda	United Kingdom of Great Britain and Northern Ireland	Papua New Guinea	
123.		Saint Kitts and Nevis	United Republic of Tanzania	Paraguay	
124.		Saint Lucia	Uruguay	Peru	
125.		Saint Vincent and the Grenadines	Venezuela (Bolivarian Republic of)	Philippines	
126.		Samoa	Viet Nam	Poland	
127.		Sao Tome and Principe	Yemen	Portugal	
128.		Senegal		Qatar	
129.		Seychelles		Republic of Korea	
130.		Sierra Leone		Republic of Moldova	
131.		Singapore		Romania	
132.		Slovakia		Russian Federation	
133.		Slovenia		Rwanda	
134.		Solomon Islands		Saint Kitts and Nevis	
135.		South Africa		Saint Lucia	
136.		Spain		Saint Vincent and the Grenadines	
137.		Sri Lanka		Samoa	
138.		Sudan		Saudi Arabia	

139.		Swaziland		Senegal	
140.		Sweden		Serbia	
141.		Switzerland		Seychelles	
142.		Syrian Arab Republic		Singapore	
143.		Tajikistan		Slovakia	
144.		Tanzania, United Republic of		Slovenia	
145.		Thailand		South Africa	
146.		The former Yugoslav Republic of Macedonia		Spain	
147.		Togo		Sri Lanka	
148.		Trinidad and Tobago		Sudan	
149.		Tunisia		Swaziland	
150.		Tuvalu		Sweden	
151.		Uganda		Switzerland	
152.		Ukraine		Syrian Arab Republic	
153.		United Arab Emirates		Thailand	
154.		United Kingdom of Great Britain and Northern Ireland		The former Yugoslav Republic of Macedonia	
155.		Uruguay		Togo	
156.		Vanuatu		Trinidad and Tobago	
157.		Venezuela (Bolivarian Republic of)		Tunisia	
158.		Viet Nam		Turkey	
159.		Yemen		Turkmenistan	
160.		Zambia		Uganda	
161.				Ukraine	
162.				United Arab Emirates	
163.				United Kingdom of Great Britain and Northern Ireland	
164.				United Republic of Tanzania	

165.				Uruguay	
166.				Uzbekistan	
167.				Venezuela	
168.				Viet Nam	
169.				Yemen	
170.				Zambia	