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# **Environmental awareness of nations: the interplay with institutional transformation**

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## **Abstract**

The paper aims to investigate the main factors responsible for the acquisition of environmental awareness by societies. We apply the institutional analysis approach that puts in evidence the factors shaping formal and informal rules and their role in the acquisition of environmental concern. The analysis demonstrates how enforcement and flexibility of formal rules and purposeful formation of informal rules may contribute to create a favourable framework for the acquisition of environmental awareness. In particular, rule of law stringency is shown to be positively related to environmental concern of the countries. We, therefore, put forward a generic scheme of the interplay between institutional change and environmental awareness, where a double causality relationship always holds. The analysis may serve as a starting point to understand the origins of the acquisition of environmental awareness over the globe and can be used for an empirical analysis based on the debate on world environmental renaissance.

## **Key words**

Environmental awareness; institutional enforcement; rule of law; formal rules; informal rules; cognitive development.

## **1. Introduction**

Increasing concern on environmental degradation urges us to search for prompt solutions at a global level. This task is very ambitious given the high heterogeneity of countries in the environmental perspective. Numerous factors are in the game at an international level. Pollution exportation, production off-shoring, intensive consumption of resources can be noted for developed countries. High pollution levels, resource curse and depletion can be put

highlighted for developing and lagging behind economies. Environmental regulations that are stringent in the former and merely existing in the latter have not yet produced sufficient global results and the goal of environmental renaissance is still far from being achieved. Clearly, for environmental issues, the international framework is of major importance.

Despite the heterogeneity, environmental policies are demonstrated to be a functioning tool in improving environmental quality. The empirical evidence on the inverted u-shape relationship between economic growth and pollution, known as the Environmental Kuznets Curve confirms the importance of policies put in act to achieve the turning point (for an overview see Dasgupta et al., 2001; Dinda, 2004; Gassebner et al., 2011), after which environmental quality improves with increasing welfare. In fact, environmental improvements are hardly possible without the intervention of a regulator. The evidence of the EKC found for different polluters demonstrates most developing countries have not yet connected economic growth and environmental progress. While it is not surprising that the stage of economic development is important when putting into effect the environmental policies, what is less obvious is what are the decisive factors that prompt a society to initiate the process of environmental renaissance.

The question we are trying to answer in this paper is what pushes a society to become environmentally aware? First of all, it is clear that there can be some extreme external and internal constrictions. These could be, for example, desperate environmental conditions, perforce entering into international unions or organizations or other factors. In the same time, the appearance of environmental awareness can also be due to a conscious choice of an environmental friendly way of development. What then are the factors that call for environmental awareness? What is the trajectory that leads a society to become aware?

There is a striking lack of evidence on the determinants of environmental awareness in the literature. The answer to this question probably lies in the intersection of various disciplines, such as sociology, law, economics, education and others. In this work we try to delineate the main features on which environmental awareness could be based, emphasizing that the institutional framework could be a good starting point for the development of further multidisciplinary prospective and empirical analysis.

We start from the existing literature related to the argument to underline the novelty of this study which consists in adopting an institutional analysis approach that puts in evidence the role of formal and informal rules in the acquisition of environmental awareness. Firstly the role of institutions and their development for environmental progress

is discussed. Then, possible sources of the acquisition of environmental concern are analysed. The attention is concentrated on the role of formal rules for appearance, divulgation and development of environmental awareness. The emphasis is then put on the composition and the impact of the factors that constitute informal rules. Finally, we provide a new general scheme that highlights the mechanism of the interrelationship of institutional transformation and acquisition of environmental awareness where, as we argue, both phenomena may reinforce each other.

## **2. State of art**

The factors responsible for acquiring environmental awareness have been rarely studied to date. So far, the argument has been analysed from the following multidisciplinary perspectives. The first strand of literature analyses the appearance of environmental analysis at a micro level, such as at firms, involved in production and in services sectors (Perron et al., 2006; Min, 2011; Yakita and Yamauchi, 2011; Yu, 2012; Chan et al., 2014). This qualitative and quantitative evidence discusses the reasons and the means of introduction of green practices and their consequences in terms of firm performance. The studies are normally based on applying managerial and business approach. There has been also some analysis of this field based on economic modelling (Yakita and Yamauchi, 2011; Yu, 2012).

Another strand of literature concentrates attention on the ways of acquisition of environmental awareness through the education system at different levels of schooling and universities (Tranter, 1997; Selby, 2009; Hassan et al., 2010; Stafford, 2011; Viorica-Torii, 2013). This research is mostly based on social and behavioural approaches. The evidence of qualitative research emphasises the importance of educational methods, training in green practices and promotion of a sustainable way of living. Yet, the factors and conditions responsible for the adoption of environmental practices in educational institutions have been also identified by some empirical studies (Stafford, 2011). Finally, Hassan et al. (2010) and Yan et al. (2012) provide interesting results regarding the determinants of environmental awareness at a local level, stating that the public participation in environmental programmes encourages environmental awareness. Yan et al. (2012) also confirm that for environmental awareness education has a significant importance. The absence of empirical analysis of environmental awareness at a more global perspective is striking.

Our article, instead, is mostly related to the strand of literature that concentrates on the links between environmental concern and institutions. Regarding this relationship a small amount of literature has emerged with very scarce empirical evidence. Few studies put in evidence the role of some particular types of institutions in relation to environmental concern. Weisbuch (2000) concentrates attention on the emergence of informal institutions, while Innes (2013) and Ebnesson (2010) put emphases on formal rules, expressed through legitimacy and liability. Scarce empirical evidence is provided for the definition of the determinants of environmental awareness, and mostly at local level (Yan et al., 2011).

Our work relies upon the aforementioned studies in several respects. First of all, the attempt is to unify the results provided by previous research to shift the vision of the problem to a more general level. Such an approach has the aim of defining crucial elements necessary for the acquiring of environmental awareness at a society level, which is useful, first of all, for environmental policy recommendations. Secondly, a key difference of our work is the focusing of attention on the importance of the role of institutional context. This approach seems to have a general character since it permits us to analyse a wide range of aspects, based on formal and informal rules, responsible for the acquisition of environmental awareness and to consider their interactions. Analysing the problem from the institutional perspective could give useful insights for further multidisciplinary analysis and for providing empirical evidence.

### **3. The links between environment, institutions and economic development**

The definition of environmental awareness can be drawn from the milestone of environmental education which is Tbilisi Declaration, released as a result of an intergovernmental conference organized by UNESCO and UNEP. The conference was held in Tbilisi in 1977, with the participation of 66 member-states and a large number of nongovernmental organisations and observers. The Declaration signed at this meeting delineates environmental awareness as the acquisition of a basic understanding of the environment and its allied problems, development of sensibility to the environment and acquiring a set of values to participate in environmental improvement and protection (Tbilisi Declaration, 1997). The document emphasizes the necessity to develop environmental knowledge through the links with legislation, policies, measures of control, and regulator decision-making, recalling the importance of ethical, social, cultural and

economic dimensions. This vision of environmental awareness puts in emphasis the essential role of institutions.

In order to analyse the interrelationship between environmental awareness and institutional context, we must first recall the most important features of institutions. We will refer here to institutions as in the classical definition provided by the founder of institutional economics, Douglass North (1989, 1321): "Institutions are rules, enforcement characteristics of rules, and norms of behaviour that structure repeated human interaction". Relying on this definition, it is clear that institutions represent a pillar for the environmental awareness of a society given that environmental concern is undoubtedly based on formal and informal rules that constitute the institutional context itself.

Promoting the institutional context could be an essential component of a common endeavour to build a more environmentally aware world. However, the mechanisms of institutional enforcement are still an open question. It is well known that assistance in the development of institutions has become an increasingly central component in our society, and huge resources have been channelled toward strengthening institutions in lagging behind economies, however, with still little success. In fact, as Haggard et al. (2008) argue, the instalment of a new institutional framework is a long process and it is a grave error to think that institutions can be readily transferred elsewhere. A classic example of a hazardous transfer of institutions is the switch of former communist countries towards the market. The institutional vacuum created after the demolition of planned economy institutions after the big bang has not yet been substituted with institutions of a market economy in many former communist economies. Whether their institutional context is comparable to those in Western Europe is still an open question.

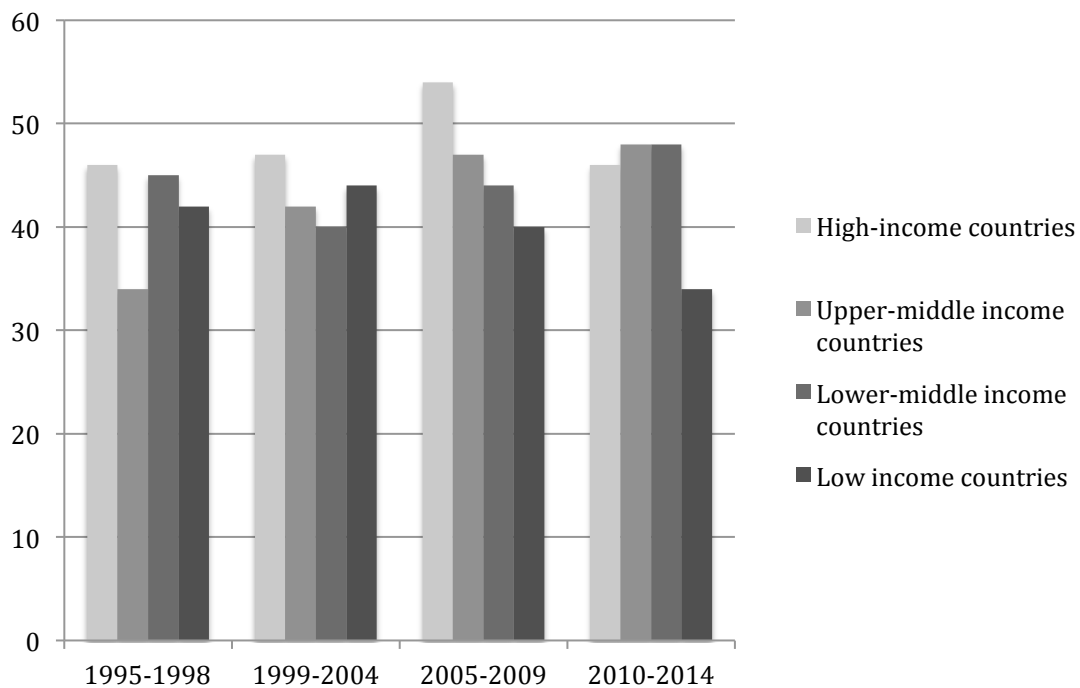
A wide range of empirical literature provides the evidence for the links between environmental quality, economic development and the enforcement of institutions. It is argued that societies characterised by protection of property rights, democratisation, control of bureaucracy and a stable legal system are those that not only obtain higher standards of living, but also greater environmental progress (Roy and Tisdell, 1998; Bhattarai and Hammig, 2004; Baek et al., 2009; Leitão, 2010). This result could be a good starting point for the analysis of environmental concern. Would enforced institutions create a necessary basis also for the acquisition of environmental awareness?

In answering this question we have to keep in mind the following empirical puzzle. Although the positive effect of a strong institutional context on economic development and

growth has achieved the status of received wisdom, many emerging countries, such as Eastern Asian countries, with still an excessive lacuna in their institutional enforcement, obtain extremely high growth rates. In the same time, these countries, being producers of a large part of goods consumed in the world, are also characterized by rapidly deteriorating environmental conditions. On the other hand, there are economic leaders, for example the United States, that despite their strong institutional context and high living standards, are not always prompt to adhere to international environmental protocols. This evidence confirms the complexity of the links between economic development, institutional enforcement and environment, which are still far from being clearly understood.

Analysing the data of the World Values Survey (2014) it is possible to illustrate a general picture of environmental awareness in the world. The World Values Survey provides a series of surveys that covers a wide range of topics concerning human values. Environmental issues are also considered. In particular, it contains the question of whether protecting the environment should be given a priority in respect to favouring economic growth. The replies to this question could be used as a proxy of environmental awareness of a country.

Figure 1. Environmental awareness in the world



From Figure 1 the general increasing trend of environmental awareness in the world from 1995 till 2014 can be noted. This tendency is particularly stable for high-income and upper-middle income countries that demonstrate a high percentage of interviewed population that opt for environmental progress. The trend however is slowing down in the last period that covers the world economic crisis. Lower-middle income countries demonstrate a quite stable dynamic with a relatively high percentage of the population opting for environmental renaissance, which did not change in the last period. It is interesting to note that environmental awareness in middle-high and middle-low income countries have converged and become higher over the period. In turn, low income countries have a somewhat lower percentage of an environmentally aware population. It can also be noted, that in recent years their trend is negative. This illustration of the dynamics of environmental awareness in the last two decades probably indicates the relationship existing between environmental concern and the degree of development of societies.

#### **4. Acquisition of environmental concern**

In order to understand the factors which are crucial for environmental awareness, we firstly make an attempt to delineate the mechanisms of acquiring environmental concern. The mechanism with the most immediate effect is that due to serious environmental damage. Drastic deterioration of environmental conditions that have destructive effects on people's way of living and health forces people to realize the importance of the immediate introduction of measures of environmental control. For example, Yan et al. (2012) observe a significant increase of environmental concern in Shanghai between 2007 and 2011. The most important causes are given as the drastic deterioration of environmental conditions, such as temperature increase and worsening of air quality. In fact, the images of people wearing protection masks in metropolises of China are well-known.

Another channel through which environmental awareness surges is through exogenous constrictions. For many transition and emerging economies, becoming part of international organizations, unions of countries or access to foreign investments can be conditioned by the introduction of severe environmental standards imposed by "stronger" economies. The effects of these practices depend on the effective willingness of the state to take care of the environment. Not environmental, but still a striking example of institutional transfer is provided by Dougherty, *The New York Times* (2007) who refers to an interview



released by, Loskutovs, a chief of the anti-corruption bureau in Latvia. “Latvia’s goal is to not fight corruption – it was to get into the EU and NATO. Creating an anti-corruption authority, he added, was a part of the checklist”. This scenario could be easily projected in the prospective of environmental protection. Fortunately, most former transition European economies, for example, have introduced and maintained structures responsible for environmental control required by the European Union. With time the imposed restrictions have been absorbed, modifying citizens’ norms and behaviour so that environmental concern has become deeply rooted. It should be noted, however, that undertaking environmental restrictions is not necessarily a duty, but very often a consequence of the positive influence of neighbouring countries. In fact, it has been observed by Weisbuch (2000) that having an ecologically concerned neighbour has a positive effect on the environmental performance of the countries.

Another possible channel through which environmental awareness can be achieved is noted by analysing the eco-leaders countries such as the Netherlands, Sweden, Denmark, Norway. These countries, positioned on the frontier of environmental progress, have not experienced neither severe environmental degradation nor constriction to adhere to environmental practices. No doubt, some mechanisms have worked to make society understand the gravity of the status quo and put in action a prevention mechanism. Clearly, this channel is the most desired scenario given that it activates an ex-ante mechanism of environmental protection and assures the timelines of intervention. The question is then what is in the black box: what are the forces that wake up environmental concern in a society?

We should bear in mind another possible channel of appearance of environmental awareness, that of innate awareness. Among lagging behind countries, where the way of living is directly related to nature, environmental awareness normally has deep roots. Severe climatic conditions, the lack of water, limited possibilities for agriculture or stock raising, for example in African countries, have produced a culture of deep respect for the environment and for a harmonized relationship between people and nature.

However, it should be noted that very often the tradition of the respect for nature in lagging behind economies is contrasted by the search for rent. Many African countries are the destination of waste disposal, produced by the developed world. One of the most recent examples is the accumulation of electric and electronic waste, which is the fastest growing waste stream of the planet (OECD 2008). Exhausted by desperate living conditions, the local

population earns by decomposing electrical and electronic waste in search for chemical components, that are sold in exchange for a little money. This mechanism works despite traditional respect for nature, which puts in emphasis the indisputable importance of economic welfare for environmental progress, which as is well known, inseparable from the enforcement of institutions.

## **5. Formal rules**

### *5.1. The role of legal context*

Considering the acquisition of environmental awareness from an institutional perspective, we start by discussing the role of formal rules. Formal rules are those that create a terrain for environmental awareness given that they provide a predictable and stable world without which any cognitive development would be difficultly achieved (Rindermann, 2008). Stability and predictability are two important aspects of formal rules that can be discussed by referring to the rule of law. This institution, as argued (Castiglione et al. 2014), represents a valid proxy of formal rules. Numerous definitions of the rule of law describe it as a principle of governance that ensures adherence to the principles of supremacy of law, equality before the law, accountability of the law, fairness in the application of the law, separation of power, legal certainty, avoidance of arbitrariness and procedural transparency (summarized by Portela (2013) on the basis of the OECD definition). From this dimension of the rule of law it is easy to deduce that a society with strong formal rules obtains a predictable world in which problems can be solved and aims be reached by effort, by the use of intelligence, rather than by coercion, personal connections and bribery (Rindermann, 2008).

In the empirical literature rule of law is accounted for in different ways (for the discussion see Haggard and Tiede, 2011), such as through mitigation of violence, protection of property rights, legal origins, control over government and corruption control (Acemoglu et al., 2001; Grossman, 2001; Beck et al., 2003; Gradstein, 2004; Donnelly, 2006).

As recent research demonstrate, the rule of law has an important influence on environment, given that it is crucial for the introduction, functioning and enforcement of environmental policies (Castiglione et al., 2014). From the environmental perspective formal rules matter because they not only mark out rights, obligations and responsibilities, but also

define what is permitted, who has the power to do what, and the consequence of different acts (Ebbesson, 2010). Moreover, given that environmental improvements rarely occur without regulator intervention, formal rules and, particularly, rule of law play a central role since, as stated by Ebbesson (2010) regulator power also becomes a subject to legal constraints, requirements and sanctions, and providing trust in government. In fact, models that give the importance to the rule of law for environmental issues, often implicitly or explicitly, identify government predation as a constraint. In this context, rule of law enforcement is a corner stone for socio-ecological systems, where the quality of institutions is fundamental for policy applications.

As for the rest of the institutions, the establishment and maintaining of a strong rule of law is a long and complex process, that depends on deeply rooted and accepted ideologies. Dawson (2013) describes two countries with similar historical, social, cultural, economic, and political similarities, such as Jamaica and Barbados, both former English colonies. The countries have strongly different rule of law values, with Barbados's state promoting rule of law, while Jamaica's is deteriorating. The roots of these differences, according to the authors are based on class formation, religion and cultural development. It is not always sufficient to maintain legal institutions to obtain stronger rule of law since it also depends on the characteristics of the society, its historical context and politics.

In considering, for example, Western European countries, it can be supposed that these economies can cope more successfully with environmental problems compared to Central or Eastern European countries because their legal systems are more functional. We can make an attempt to analyse the relationship between rule of law enforcement and environmental performance. Table 1 provides information on the rule of law index for four groups of countries for the period 1996-2013. The data on rule of law is provided by World Governance Indicators (2014); the rule of law is a composite index that ranges from -2.5, that corresponds to the lowest rule of law level, till +2.5, that corresponds to the highest rule of law level.

The positive trends of the rule of law enforcement for some well-performing Western European economies is shown in the first group of countries. As can be seen, rule of law, that displays very high levels, is decisively increased during the period of observation.

Table 1. Rule of law change in developed and emerging countries

	Rule of law 1996	Rule of law 2013	% Change		Rule of law 1996	Rule of law 2013	% Change
<b>I. Eco-leaders</b>				<b>III. Lagging behind European countries</b>			
Denmark	1.79	1.87	+1.6	Greece	0.98	0.44	-10.8
Netherlands	1.65	1.87	+4.4	Italy	0.98	0.36	-12.4
Norway	1.89	1.97	+1.6	Portugal	1.23	1.03	-4
Sweden	1.76	1.95	+3.8	Spain	1	1.39	+7.8
United Kingdom	1.59	1.67	+1.6				
<b>II. Former-transition European countries</b>				<b>IV. BRICS</b>			
Czech Republic	0.84	1	+3.2	Brazil	-0.33	-0.12	+4.2
Poland	0.67	0.79	+2.4	China	-0.43	-0.46	-0.6
Romania	-0.02	0.11	+2.6	India	0.26	-0.1	-7.2
Slovak republic	0.63	0.94	+6.2	Russia	-0.87	-0.78	+1.8
Latvia	0.63	0.74	+2.2	South Africa	-0.01	0.13	+2.8

The second group includes some Central European countries. Despite their attempts to import Western European institutions, these countries have had a tortuous switch versus market economy and are still characterized by weaker rule of law performance. However, as Table 1 illustrates, their lower levels of the rule of law compared to the previous group of countries, demonstrate a significant increasing trend in the last two decades.

Western European countries, however, can also have unpleasant institutional dynamics. These countries, unified in a well known but unfortunately named classification, are those that are experiencing hard times in terms of financial, social, and political aspects: Portugal, Italy, Greece and Spain are included in the third group. As can be seen from Table 1, their rule of law index is not only decisively lower than that of other Western European countries, but also drastically decreasing, with the exception of Spain that demonstrates a positive performance. For the sake of comparison, Table 1 also represents emerging countries such as BRICS, in the forth group. These economies are characterised by extremely low and almost always negative, rule of law values. However, except for China and India, a slow improvement of the legal rules can be noted.

What conclusion can be drawn from Table 1 from the point of view of environment? Empirical evidence clearly has shown the important positive impact of rule of law enforcement for environmental quality, for application of environmental policies and for environmental renascence. Therefore, the institutional paths captured in the table can give some idea also about environmental performance. In fact, in the first group we find countries that apart from the stringent rule of law, are also characterised by an excellent

environmental protection experience, in fact, these countries are also known as eco-leaders (Ekins et al., 2011). In turn, Central European countries of the second group are those that have recently introduced environmental policies, enhanced by European Union requirements. The environmental performance of these countries is constantly improving, but still lagging behind. In turn, some countries of the third group, are well known for the sad experience of illegal waste disposal and recycling (Bonini, *La Repubblica*, 2008) and scarce regulator capacity in monitoring environmental policies application (Infante and Smirnova, 2016). Although among BRICS group countries we find major world polluters such as China and India, these emerging countries are also those that recently have invested to improve their environmental performance (Song et al., 2013), which together with the improvement of their institutional context could constitute a promising ecological scenario.

To support the hypothesis of the links between environmental concern and institutional strength, interesting information can be extracted from the last wave of the World Values Survey (2014) converging on the period 2010-2014. As noted above, the Survey gives information that can be seen as a proxy of environmental concern. Unfortunately, not all of the countries taken into analysis are covered by the survey, so we take into consideration the average values of the groups of available countries. Ecological leaders have a very high percentage, of around 65%, of the interviewed population that gives priority to environmental protection compared to economic growth. The BRICS group also demonstrates a significant part of the population that gives priority to the environment, around 50%. The percentage, however, differs drastically for former transition countries that are still reluctant to solve environmental problems and constitute around 44%. The countries that would dedicate fewer resources to the environment are, unsurprisingly, European countries of the third group that represent an unstable economic, social and political framework. In this group, in average, only 37% of the interviewed population can be considered as sensitive to the environment.

As our investigation demonstrates, the enforcement of legal rules and, particularly, of the rule of law, is strictly related to the degree of environmental concern present in society. For this reason the enforcement of rule of law should be considered by a policy-maker as a valid tool for the achievement of an environmentally aware society.

## *5.2. Resilience of formal rules*

The introduction and development of new institutions is not only a long process, it also depends on the continuous support and endorsement of people. Deeply rooted ideologies are able to create obstacles to institutional development, which recalls the inseparability of formal and informal rules forming an institutional context. As we have seen, rule of law, particularly, has multiple dimensions, so there are some complementarities that can be expected to promote or retard economic growth, as well as environmental renaissance.

In the literature there are well-defined reasons for why formal rules may not always be efficient. The important characteristic of formal rules is, as known, their resilience. The lack of resilience can be the reason for the difficulties in importing or transferring the formal rules among societies, in adoption of a certain institutional context. Despite the static and fixed nature of the law, as argued by Ebbesson (2010), in some situations other values and ethical concerns may override the value of legal rules, since legal certainty may simply amount to being unfair or discriminatory.

In the environmental perspective where uncertainty is high due to the intensive technical processes, resilience of formal rules is an important factor. Folke (2006) argue that resilience permits a convergence of social and ecological systems, placing in the centre legal considerations. In fact, in the absence of resilience, rigid legal regulations may fail to promote adequate environmental awareness. This happens since environmental issues presume the presence of a decision-making process (Weisbuch, 2000), where agent's actions impinge on the status of the world and the resulting changes of the environment modify agents' behaviour. If drastic environmental change happens, effective decision-making becomes crucial to mitigate environmental damage as well to adopt to new circumstances. In this framework, agents' interactions may unfold and shape the formal rules.

However, resilience itself may depend on the rule of law. This is because in regulating environmental issues, rule of law not only defines rights and duties, but also takes on an instrumental character (Ebbesson, 2010), influencing social trust, legal system and rights protection, which calls for a certain degree of flexibility in the system. In this regard Walker and Salt (2006) and Folke (2006) argue that society should be flexible enough to face the uncertainty rather than attempting to control nature and institutions must be open enough to promote the process of adaptability. Consequently, as again Ebbesson (2010) argues, the challenge remains of finding appropriate relations between legal rules and resilience. On the

one hand, legal rules should acquire an open-textured character, permitting flexibility. On the other hand, legal rules should guarantee that the regulator acts within the limits of discretion imposed by general laws (Raz, 1977).

## **6. Informal rules**

### *6.1. Cognitive abilities*

The mechanism of interaction of formal rules and resilience calls for another important component for acquiring environmental awareness that, however, already resides within the mechanism itself. This component consists of the formation of informal rules that are a part of the institutional context. As noted above, informal rules, such as common beliefs, traditions, convictions, cultural backgrounds and others have a strong influence on both formal rules and resilience.

Formation of informal rules and their composition are decisive for the acquisition of environmental awareness. Viorica-Torii (2013) argues that in order to awaken sensibility, environmental ethics should be inglobalised into society since it contributes to improving the building up and reassessment of human behaviour towards nature. Ethics, in turn, is the result of the development of moral values as attitudes towards environmental protection, which is impossible if there is no understanding. Adoption of environmental practices implies that members of society are aware of the state of the nature as well as of the effects of the interaction with the surrounding environment. Environmental awareness comes only when understanding of environmental problems is embraced into society at the individual level.

For these reasons, among the multiplicity of informal rules that enforce environmental awareness those that are linked to cognitive abilities are relevant. Cognitive abilities, in accordance with Bernstein et al. (2008) can be defined as the capacity to perform higher mental process of reasoning, remembering, understanding, problem solving and decision-making. Therefore, from an environmental perspective, cognitive abilities are fundamental since they establish the recognition and respect for the rights, definition of duties, reciprocity, understanding the interests of others, defining social interactions. As argued by Oesterdiekhoff (2000), these social interactions are essential also for the building up of strong institutions, such as rule of law, democracy and political freedom. In fact,

cognitive abilities measured through intelligence and knowledge are demonstrated by the empirical literature (Rindermann, 2008) to contribute positively to institutional enforcement.

We can again think of the argument by inverting the causality relationship. Societies characterized by strong institutions are proved to have also informed, intelligent and rational citizens. As discussed by Kaufman et al. (2003), intelligence is required at macro and at micro-social levels, given that it influences any decision-making process and defines the quality of administration, legal system and governance. Since rule of law promotes intelligence and knowledge, in societies characterized by strong rule of law, the development of cognitive abilities is enhanced and environmental awareness can be easily acquired.

Cognitive abilities are also closely linked to the economic wealth of society, given that they stimulate economic development and are also supported by it (Weede, 2006). This is another reason why environmental awareness of a society is necessarily linked to the degree of development. Civil societies that promote strong institutions, education and intelligence create the necessary framework for the diffusion of environmental awareness. Instead, for countries where a regime of instability rules the environmental concern is clearly obstructed. For example, unstable institutional framework created as a result of a drastic institutional change, as had happened in Central and Eastern European countries, led to fragility and uncertainty of the system. As a consequence, negative trends in social interrelations contributed to the appearance of separative factors in maintenance of common values (Bugaric, 2008). As known, these countries are also characterized by weaker environmental performance in respect to their Western European counterparts. We can, therefore, conclude that economic wealth, political stability and institutional enforcement create a favourable framework for the acquisition of environmental awareness through enhancing the process of cognitive development.

## *6.2. Education as a tool of acquisition*

The development of cognitive abilities that contribute to the creation of a favourable matrix of informal rules can be achieved through education (Barber, 2005). As stated by Lipset (1960), better education allows people to share more easily the values constructed on strong institutions, such as democracy, legitimacy and tolerance. Rational decisions taken in society are then greatly facilitated.



Education can be seen as a valid tool to diffuse environmental awareness. As Kohlberg (1987) and Dee (2004) argue, educated people are better and easily informed, have robust moral judgment and dynamic cultural enrichment. Education, therefore, may have a relevant effect on environmental concerns given its impact on rational choices, better information processing and ethical effect, which itself depends on cognitive ability, given that cognitive development is a prerequisite for moral development (Rindermann, 2008).

Many are the examples of promulgation of education in an environmental perspective. Particular attention is given to the early education, such as in primary and secondary schools. In fact, formation of informal rules is easily enhanced in the early years. Many emerging economies, where environmental conditions represent severe threats, start introducing environmental programs at schools. For example, in Malaysia, following UNESCO (1999) directives on environmental education, programs related to environmental education include courses that aim to increase environmental concern, to give knowledge on laws and policies aimed at increasing environmental conservation and at enhancing noble values that increase the appreciation of the environment (Yan et al., 2012).

Environmental education programs are, however, more diffused at university level, even though still at a pioneering stage (Selby et al., 2009). In this case these programs not only aim to enhance environmental awareness, but also improve the image of the university, and so to attract students. Financial resources are fundamental for the decision to adhere to environmental practices. As Stafford (2011) notes, environmental support is still a luxury good for universities. This confirms the importance of a policy maker intervention to provide necessary resources designed appositely for the formation of environmental awareness through the spread of environmental education.

## **7. Completing the puzzle**

To sum up the process of the acquisition of environmental awareness, we can put the above consideration into a general scheme. Figure 2 represents the interaction between environmental awareness and institutional context. As noted above, institutional awareness, represented in the centre of Figure 2, can be acquired through different channels: innate acquisition, acquisition through knowledge and acquisition through constrictions that can be, in turn, due to social constrictions or due to drastic environmental degradation. Acquisition through knowledge and through exogenous social restrictions, in turn, implies

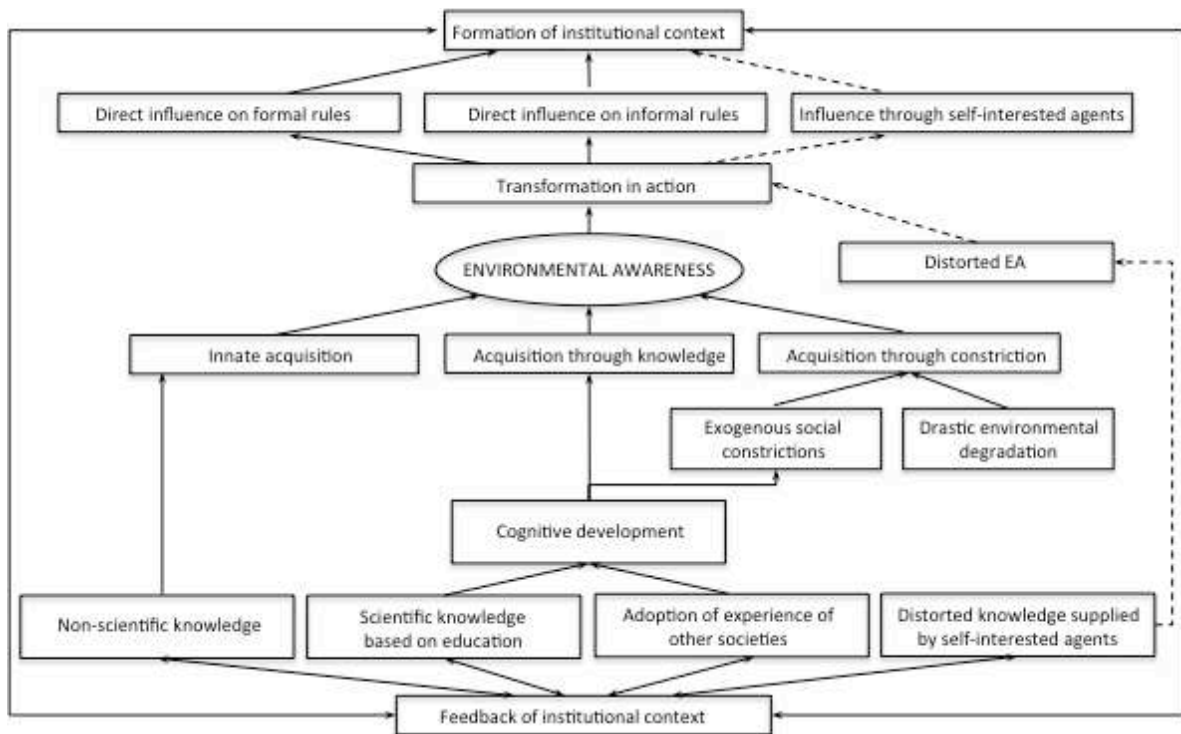
the involvement of a cognitive process. This process can be based on the development of scientific knowledge founded on education or on the importation of environmental practices adopted by other societies. In turn, innate awareness goes through another route, given that it is based on non-scientific knowledge but on traditions, norms of behaviour or convictions. This channel together with the two above channels has a strong influence on shaping institutional context.

The last channel, that of drastic environmental degradation, does not have a closed loop with institutions. This is because this type of awareness acquisition is not founded on institutional change but, however, it is also fated to change the institutional context, as other channels do. In fact, as represented in the upper part of Figure 2, once environmental awareness is acquired through the channels, it puts in action the mechanism of institutional transformation by influencing the formation of formal and informal rules.

We can detect another mechanism linking institutions and environmental awareness. This mechanism is linked to environmental predation, i.e. extracting rent from actions that simulate environmental concern. These types of rent-seeking contribute to the formation of distorted knowledge of the environment and, instead of contributing to the acquisition of environmental awareness create distortions and provide rents for self-interested economic agents involved in the game. This process without doubts has a strong but negative impact on institutions. One of the examples of this scenario is the mining project of Peru in the Cajamarca region (Leon and Kraul, *Los Angeles Times*, 2011). The lagoons located in this region are the source of water for the residents and for local agriculture. The aim of the largest mining investment in the history of the country is aimed at the extraction of gold situated in the lagoons. This creates a credible threat to the ecosystem. The promoters of investments have tried to launch different companies to influence the opinion of the population concerning the neutrality of the environmental consequences of mining. Political crisis and regional clashes are the consequences of a still unresolved situation.

Finally, as shown in Figure 2, environmental awareness not only implies institutional change, but it is also influenced by the feedback of institutions. In fact, the interrelationship between environmental awareness and institutional context is presented as a closed loop.

Figure 2. Interrelationship between environmental awareness and institutional context



## 8. Conclusions

In this paper we have made an attempt to analyse the main factors responsible for the acquisition of environmental awareness by societies. Understanding the driving forces of environmental awareness can be a useful tool to put in act the global move towards environmental renascence and enhanced sustainability promotion also in the societies that are reluctant to adhere to environmental standards and regulations.

Regarding the issue of the acquisition of environmental awareness a small amount of literature has emerged and the links between institutions and environmental concern have been rarely studied today. Therefore, the novelty of this study is in investigating environmental awareness from the perspective of the institutional context. This approach bears the most general character and permits us to analyse a wide range of aspects, based on the formation of formal and informal rules, responsible for the acquisition of environmental awareness by considering their interactions.

The investigation offers the analysis of possible channels of the acquisition of environmental awareness, considering the complexity of the links between economic development, institutional enforcement and environment. First of all, formal rules are argued to have an important role for the acquisition of environmental awareness through the creation of a predictable and stable world, based on sharing rules and values, the supremacy of the law, a transparent juridical system and protection of rights. In fact, rule of law enforcement is supposed to have an important positive impact on environmental concern. By analysing the data on the rule of law index and on environmental preferences for different groups of countries, we show that rule of law stringency is positively related to the environmental awareness of countries. However to be efficient, formal rules should be appropriately related to resilience, which guaranties a necessary flexibility for dynamic socio-ecological systems. These factors should be carefully accounted for by a policy-maker in formatting the modern legal system of contemporary societies.

For environmental awareness informal rules are not less important, based on cognitive abilities which are fundamental since they establish the recognition and respect for the rights, definition of duties, reciprocity, understanding the goals and the interests of others and define social interactions. We underline that formation of cognitive abilities in relation to the environment is a difficult task that, however, can be managed by a policy maker by providing the necessary resources to the programs of environmental education.

We can, therefore, conclude that economic wealth together with the enforcement of formal rules and purposeful formation of informal rules may create a favourable framework for the acquisition of environmental awareness. However, a double causality relationship between environmental awareness and institutions always exists. To demonstrate this phenomenon and to put all the pieces of the puzzle together, we elaborate a general scheme of the interaction between environmental awareness and institutional change. As shown, the process of the acquisition of environmental awareness implies the institutional transformation that in turn has an impact on the formation of environmental concern itself. What policy-makers at the global level need is, therefore, to find correct mechanisms for the enhancing of environmental awareness through the interplay of targeted formal and informal rules, based on a context hospitable to strong institutions.

We hope that the present work could constitute a starting point so to give insights for further empirical evidence on the determinants of environmental awareness. On the basis of our results, the future analysis should be done, on the one hand, by considering institutional

indicators reflecting formal rules, emphasising on factors concerning the rule of law, legitimacy, the degree of violence, or corruption control. On the other hand, informal rules should be accounted for, which can be done by considering cultural backgrounds, cognitive abilities, intelligence and accumulation of human capital. Clearly, classical factors reflecting the degree of economic development and growth are to be also taken into consideration. Finally, the delicate issue of environmental predation and distortion of information regarding environmental problems with the aim of the search of rents should be carefully addressed by further investigation.

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