

Professional Career Program

Environmental Economic Theory

No. 8

(4 December 2018)

*Decentralized policies: Liability laws, property rights,
voluntary action.*

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Textbook: Barry .C. Field & Martha K. Fields (2009)
Environmental Economics - an introduction, McGraw-Hill,
International Edition

PCP Environmental Economic Theory (Hosoda)

Homework 8

4 December 2018

- Theme: *Explain how a voluntary action to reduce environmental burdens works, by means of a concrete example based upon experiences in some countries, hopefully in your home country.*
- Language: English.
- Volume: A4 two pages. Single space. 12 points.
- Submission period: **9 a.m. 10 December – 9 a.m. 11 December 2018.**
- Submission: Submit your paper in a pdf. file. A file name must be “HW8.xxx.pdf” (xxx=your name). Send your file to hosoda@econ.keio.ac.jp.
- Remark: Please follow the format style of homework.

The purpose of this chapter

In this chapter, we study decentralized policies represented by

- (1) liability laws (rules),
- (2) property rights and
- (3) voluntary action.

Decentralized policies allow the individuals involved in a case of environmental pollution to work it out themselves.

1. Liability Laws (rules)

- Liability and compensation are important concepts in daily economic activities.
- Actors are sometimes liable for damages which they cause.
- They are often required to compensate those damages.
- By liability laws, would-be polluters make careful decisions, and may internalize external effects.

Liability Laws (rules)(cont.)

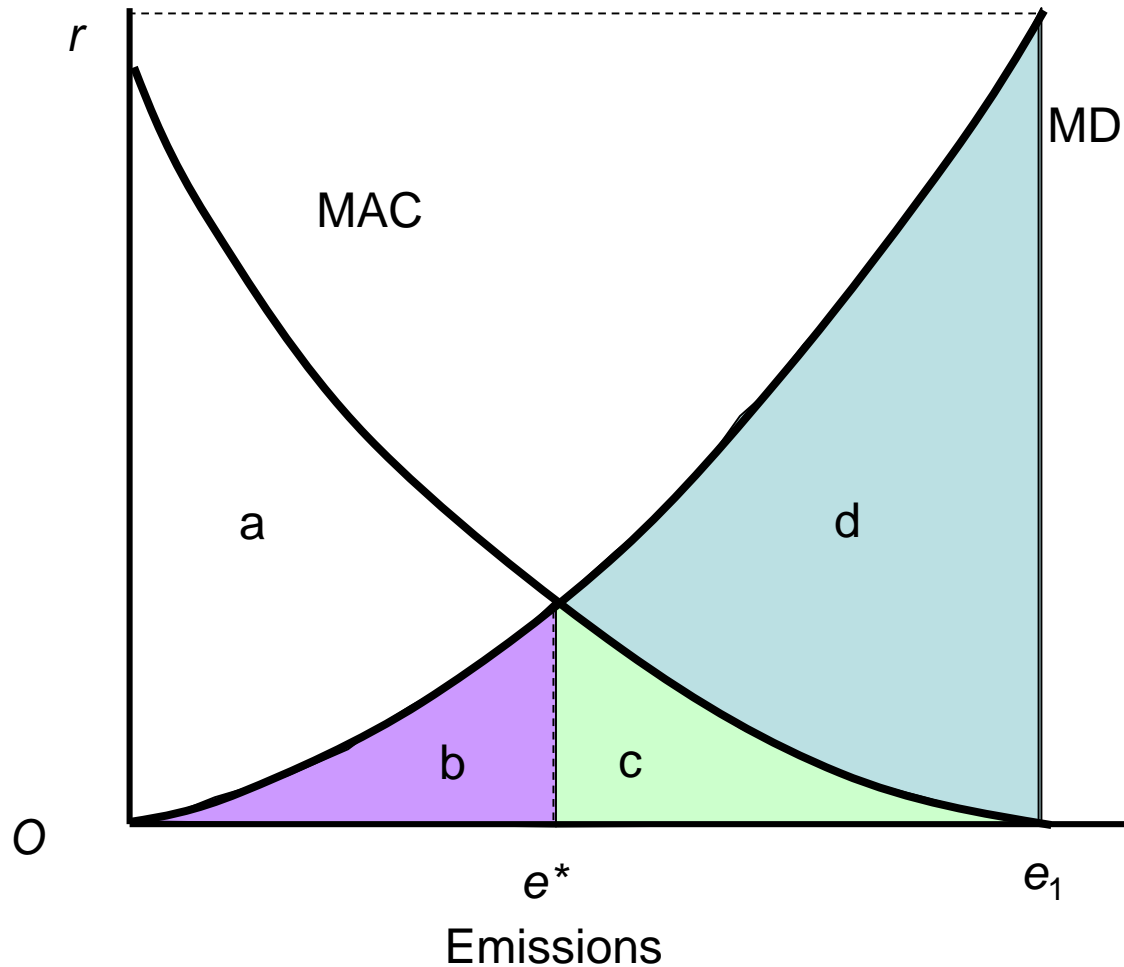
- Suppose that your activity such as discharge of waste water, gas and so on may possibly cause damages to others, and that you are supposed to compensate for those damages, following liability laws.
- Then, you become very careful for the discharge, trying to avoid bringing about the damages.

Liability Laws (rules)(cont.)

- Thus, liability and compensation are supposed to give would-be polluters an incentive to discharge less amount of waste water, gas and so on than otherwise.

Principle:

Explanation by means of a figure



If a polluter is liable for the damages which he/she has caused, he/she must compensate the amount represented by the area $(b + c + d)$ when e_1 amount of pollutant is emitted.

If the liability rule is given, a would-be polluter should choose e^* . (Consider why so.) Notice that some damages (b) remain.

Yet, whether this actually happens depends upon the legal process.

Two types of laws

- Common law: (Judge-declared law). Law which exists and applies to a group on the basis of customs and legal precedents developed over hundreds of years, for example, in Britain.
- Statutory law: This is a written law passed by legislature on the state or federal level.

Two types of laws: a figure

Legal system



Statutory law

Common Law

Two types of laws (cont.)

- Every country has more or less both types of laws.
- Common law is given more weight in some countries like United Kingdom.
- On the contrary, it is not given heavy weight in Japan.
- Let us consider them in order.

A. Common law

- Common-law systems rely on court proceedings in which plaintiffs and defendants meet to make claims and counterclaims, and in which juries are often called on to decide questions of fact and amounts of compensation.
- Common-law systems are adopted mainly in United Kingdom, USA, and so on.
- Basically, they are not adopted in Japan, but the similar procedure has partly been introduced into Japanese courtrooms for some specific cases.

B. Statutory law

- Under statutory law, many countries have introduced liability laws which control pollution issues.
- Particularly when it is hard to monitor polluters' behavior, liability provisions may give them an incentive to undertake the appropriate steps to reduce the probability of accidents.
- The statutory laws can provide the correct incentives only if the compensatory payments required from each polluter approach the actual amounts of damage they cause.

B. Statutory law: an example

- In Japan, **the law for the compensation of pollution-related health injury** was introduced in 1973.
- No new victims of air pollution have not been *certificated under this law* since 1987, although the victims of air pollution certificated before 1987 are still compensated.

Strict liability and negligence

- Strict liability holds polluters responsible for damages regardless of circumstances, whether there is negligence or not.
- Non-strict liability (negligence liability) holds polluters responsible for damages only if they do not take *appropriate steps* to avoid the damage.
- Can the optimal emission level e^* in the figure be attained in common law procedures?
- Yes, at least in theory, but things are more complicated than they look in daily life.

Joint and several liability and non-joint liability

- Joint and several liability: One party can be held liable for all of the damages stemming from a collective act of pollution.
- Non-joint liability: A party will be held liable only for its portion of the total.
- Which type of liability should be adopted depends upon history, culture, legal mindset, circumstances and so on.

Burden of proof and standards

- It *does* matter which side a burden of proof is on.
- Usually, a plaintiff who is damaged is required to prove causal relationships which show that he/she is really damaged by the defendant's action.
- If rigorous or scientific causal relationships are required to be shown by a plaintiff, the burden of proof is too heavy.
- As for environmental issues, epidemiologic relationships are considered sufficient as causal relationships.

A few remarks

- Epidemiologic relationships are not the same as scientific causal relationship in a strict sense.
- According to Wikipedia, epidemiology is the study (or the science of the study) of the patterns, causes, and effects of health and disease conditions in defined population.
- Even if a strict scientific causal relationship cannot be found between two events, epidemiologic relationship may be considered to exist between them if the *probability* that one event causes the other is high.

A few remarks (cont.)

- If we stick to rigorous scientific causal relationship in real pollution cases, we may not be able to save pollution victims.
- In quite a few pollution cases, epidemiologic relationships are considered sufficient to identify who is a polluter and which is a source of pollution.

An example: The Minamata disease case

- In the Minamata disease case, it was difficult to find a scientific causal relationship in a strict sense between the pollution source (Chisso company) and the disease.
- Yet, it was considered that an epidemiologic relationship was sufficient to identify the polluter.
- Thus, the victims were relieved, although some victims remain unrelieved because they are not officially identified as the victims.

Transactions costs

- Transactions costs are the costs of reaching and enforcing agreements.
- The concept was first introduced in economics to apply to the costs that buyers and sellers encounter in making a successful transaction.
- The costs include searching costs, bargaining costs, agreement costs and so on.

Transactions costs (cont.)

- The concept is applied to liability systems.
- In this case, the transactions costs are those related to gathering evidences, presenting a case, challenging opponents, and so on.
- In many cases of environmental problems, the transactions costs are often very large.
- If transactions costs are too large, it is hard to solve environmental problems by means of common law.

2. Property Rights

- External diseconomies have a reciprocal nature.
- It is sometimes difficult to determine which side gives external diseconomies.
- This problem is closely related to allocation of property rights.
- Once property rights are properly allocated among economic actors, environmental problems may possibly be solved by negotiation.
- Yet, property rights are often imperfectly specified in the case of environmental assets.

External diseconomies which have a reciprocal nature

- Person A may have right to enjoy quietness.
- Person B may have right to enjoy music at full blast.
- In the former case, the quietness may possibly be imposed on person B, while the big sound may possibly be imposed on person A in the latter case.
- Which gives an external effect to which?

Principle: The Coase theorem

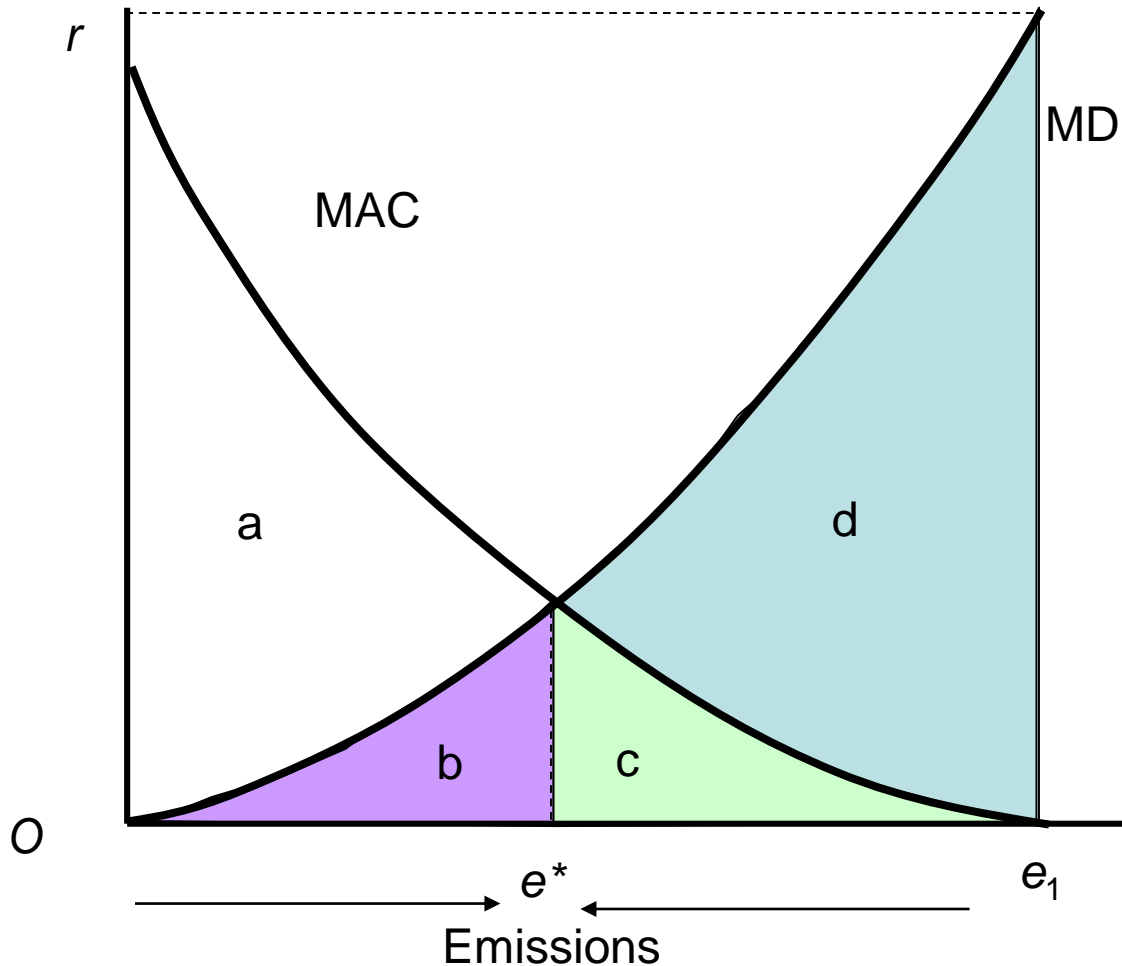
- The Coase theorem tells us that the optimal emission level is attained by voluntary negotiation of the involved actors, on whichever side the property rights may be assigned, provided that some conditions are fulfilled.
- This theorem is remarkable since it insists that the initial allocation of property rights *does not* affect the optimal allocation.

Principle: The conditions on which the Coase theorem holds

1. Property rights are defined well and defensible.
2. Transactions costs are reasonably low.
3. There exist markets through which the actors can actually realize the full social values of their decisions.
4. There is no income effect.

Principle:

Explanation by means of a figure



Suppose that the emission rights are given to a plant which emits pollutants. Negotiation between the plant and the damaged actor leads the emission level from e_1 to e^* . The latter actor compensates for the reduction of pollutants. (Consider why so.)

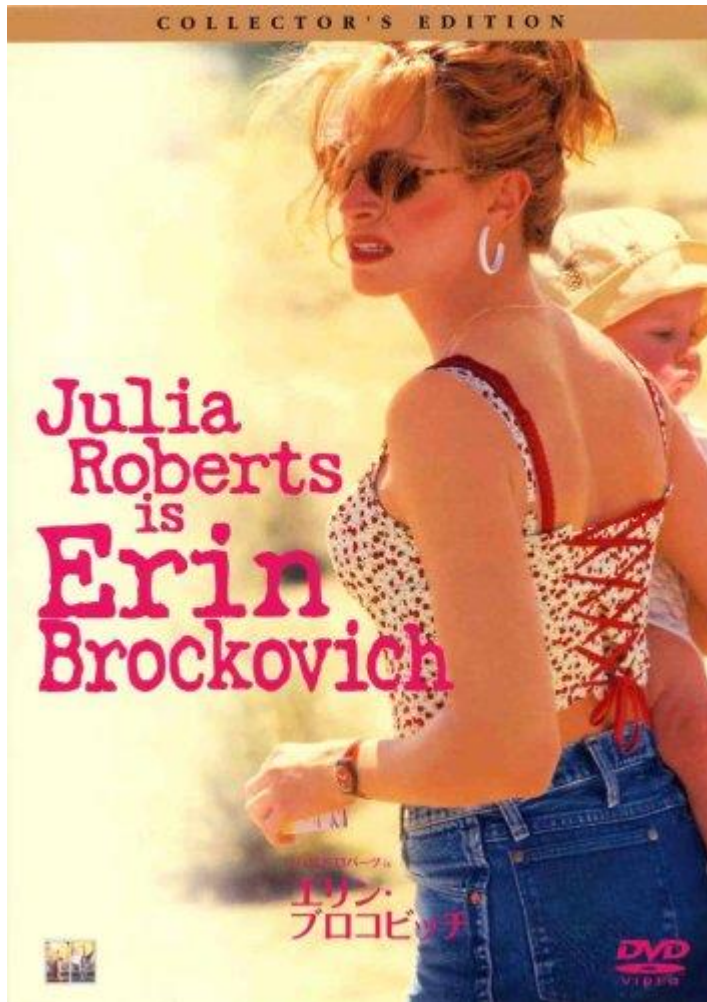
If the clean environmental rights are given to the latter actor, the negotiation leads the emission level from O to e^* . In this case, the plant compensates for the damage from which the latter actor suffers. (Consider why so.)

From which points the negotiation starts, the final result is obtained at e^* .

Transactions costs may be large

- In the simple case explained by the figure, transactions costs would probably be low.
- Yet, in some cases, those costs may be huge.
- Suppose there are many actors who are damaged by pollution. Then, it is usually hard for them to exchange opinions and to take the case to a court in a cooperative manner.
(→*Erin Brockovich!*)
- Moreover, there may be free-riders.
- Hence, high transactions costs will reduce the potential of private property approach.

Erin Brockovich



Erin Brockovich in the movie



Real Erin Brockovich

Absence of markets

- A property rights approach requires market valuation or its alternative way of valuation.
- Without any valuation of related factors, negotiations cannot take necessary values into account.
- Environmental assets, however, have a nature of public goods, and all the values may not be considered by actors involved in negotiations.
- Public actors may well create the demand side for such a market.

A few important remarks

- The strongest feature of a property rights system is that it gives owners the incentive to protect and manage their assets to maximize their market value.
- Negotiations between two actors usually succeed in efficient allocation of environmental resources, provided that the above four conditions (upon which the Coarse Theorem holds) are satisfied.

A few important remarks (cont.)

- In reality, it is sometimes hard to determine the allocation of property right.
- In the pollution cases which appeared in the 1970s, polluters vaguely thought that they had the right to pollute the environment.
- Yet, in the courts, such right was rejected.
- This implies that people have the right to enjoy clean environment, although the environment right has not been stipulated so far.

A few important remarks (cont.)

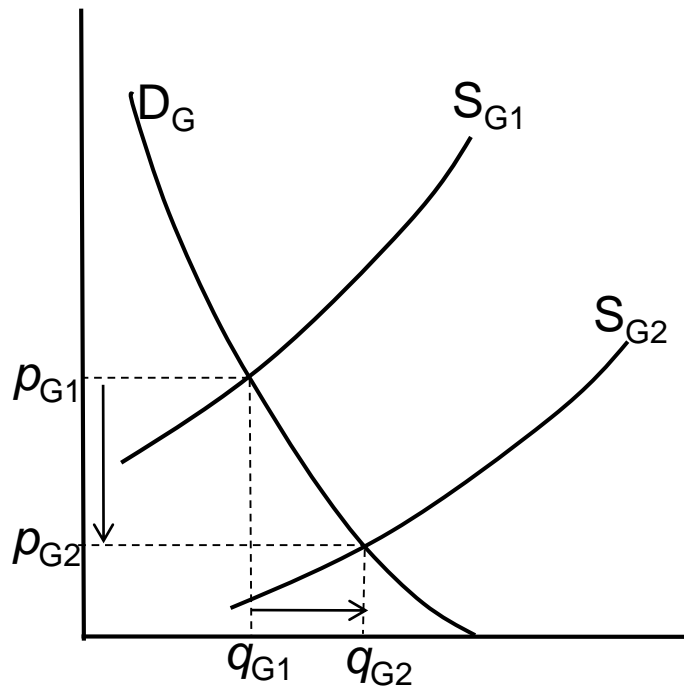
- Some argue that the environment right is indispensable for protecting environment.
- However, the environmental right has not been judged as an indispensable factor for life by court so far in Japan.
- There is an argument that we should introduce the environmental right into the present legal system.

Markets for green goods

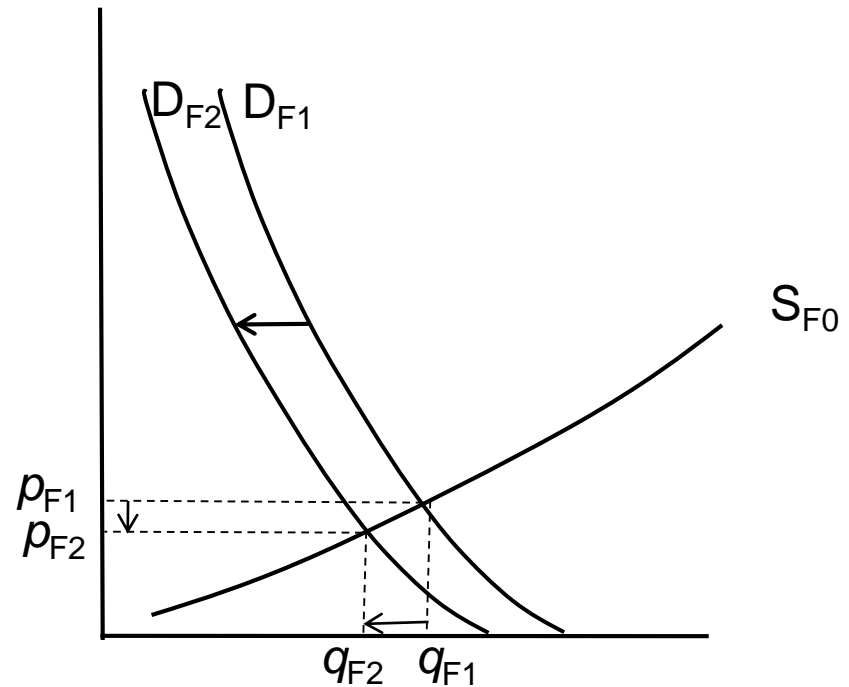
- Once property rights are established, new private markets might be formed that could move the economy toward improved environmental quality.
- Among citizenry at large there is steadily growing concern about the impacts of environmental pollution.
- This represents an opportunity for private entrepreneurs to make available goods and services that are produced in more environmentally benign ways.

Markets for Green Goods (cont.)

Suppose that a demand curve for green electricity is expressed D_G . Then, the price of green electricity is p_{G1} in a market equilibrium, and the amount of q_{G1} is transacted. If technical progress occurs for green electricity and the supply curve shifts down to S_{G2} , the price falls down to p_{G2} .



If the price of green electricity falls down, demand for dirty electricity will shrink and the demand curve shifts, say, from D_{F1} to D_{F2} , since green electricity and dirty electricity are substitutes for each other. The amount of dirty electricity transacted is reduced, while the price of dirty electricity falls down also.



3. Voluntary action

- One might consider that voluntary action is not useful for pollution control.
- Actually, voluntary action is sometimes effective for pollution control or environmental conservation programs.
- But, why do private sectors try to control pollution voluntarily, without governmental intervention?
- There are two reasons: moral suasion and informal community pressure.

Moral suasion

- Moral suasion may encourage people to act in an environmental friendly manner.
- Local communities proceed with recycling activities voluntarily. Green people persuade non-green people for recycling.
- Moral suasion has widespread spillover effects.
- We cannot rely very heavily on moral suasion to control pollution, but it creates a strong atmosphere in which environmental policies are more easily administered and enforced.

Informal community pressure

- Informal community pressure may give incentive to would-be polluters to reduce the amount of pollutants emission.
- If firms dare to counter the community pressure, they may lose their social reputation, which means the loss of the long-run sales and profits.
- Also, their stock values may possibly decline, and there may be financial damages. Stockholders should not be happy with this.

Remarks: importance of information

- A major factor in voluntary actions is disclosure of information on firms' environmental performances.
- Unless there is such information, it will be difficult to mobilize public concern on the responsible parties.
- TRI (Toxic Release Inventory) program may work in this direction. \Rightarrow PRTR (Pollutant Release and Transfer Register) in Japan.

Remarks (cont.)

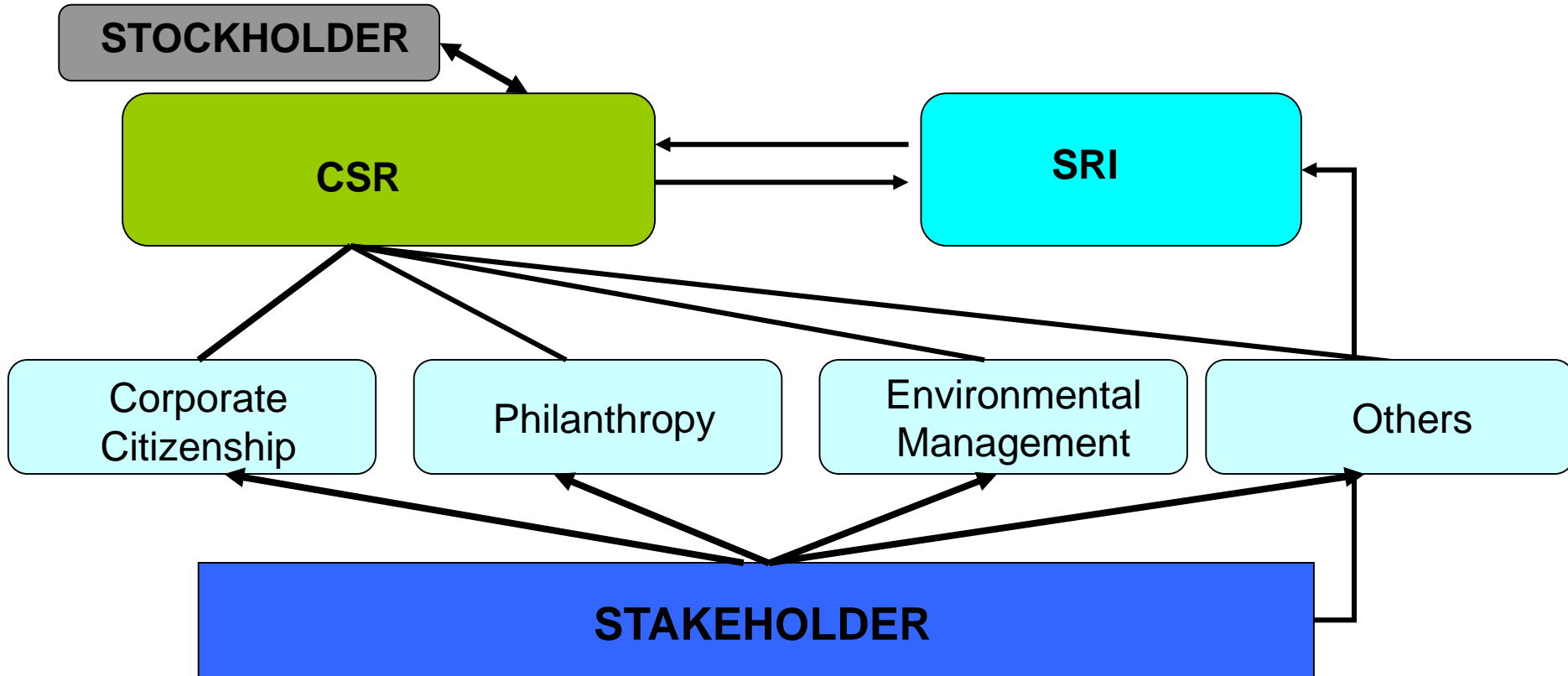
- CSR (Cooperate Social Responsibility) is also considered to work as one of the voluntary actions.
- Nowadays, many firms publish CSR reports, which contain so-called *negative* information.
- SRI (Socially Responsible Investment) gives financial momentum towards voluntary actions.

What is CSR?

- “Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large”.

by Lord Holme and Richard Watts

Remark (cont.): CSR



CSV

- A famous Harvard professor Michael Porter proposes CSV (Creating Shared Value), beyond CSR.
- CSV is a more positive concept than CSR.
- CSV will surely contribute to enhancing environmental quality.

What is CSV?

“Creating shared value presumes compliance with the law and ethical standards, as well as mitigating any harm caused by the business, but goes far beyond that. The opportunity to create economic value through creating societal value will be one of the most powerful forces driving growth in the global economy. This thinking represents a new way of understanding customers, productivity, and the external influences on corporate success. It highlights the immense human needs to be met, the large new markets to serve, and the internal costs of social and community deficits—as well as the competitive advantages available from addressing them. Until recently, companies have simply not approached their businesses this way.”

By Michael E. Porter and Mark R. Kramer

Harvard Business Review, February 2011.

Hard law and soft law

- Hard law is a legal norm which is stipulated and given enforcement power by a nation.
- Soft law is a social norm which is not stipulated nor given enforcement power by a nation. (CSR, CSV and so on)
- Recently, the role of soft law is emphasized for solving certain types of environmental problems.