

APPLICATION of “POLLUTER-PAYS-PRINCIPLE” and ENVIRONMENTAL LIABILITY ISSUES

Ms. Tiziana Cianflone, Mr. Leonardo Arru

APAT

Agency for Environmental Protection and Technical Services

The regulation on environmental liability in Italy: analysis and discussion of case studies

Valuation case: contaminated sites (NPL)

1. Why do we speak of internalization?
2. What environmental damage are we considering?
3. What are the policy goals?
4. What are the tools to get these goals?
5. What is the economic valuation role?
6. What is the current best method to value environmental damage in the contaminated sites (NPL)

- In Italy Environmental policies aim at protecting and avoiding damage to the environment but environmental damages occur
⇒ what strategy are developed? And what are the goals of this strategy?
- The identification of these goals is the tool to choice the best methods to valuate, in monetary terms, the environmental damages

Theoretical Background

The Economic Law literature sustains that, *in perfect information condition*, a liability regulation system has to:

- (i) *ex post* – allow a complete internalization of the environmental damage
- (ii) *ex ante* – be an incentive to private in investing in order to avoid environmental damages.

NATURAL RESOURCE DAMAGE

(theoretical-economic approach)

- any human activity (both production and consumption) determines natural resource changes
- if the natural resource changes are negative and polluters do not bear the costs, they are negative externalities that need compensation (otherwise market failures occur)
- in economic terms, externalities and market failures justify a regulatory system

NATURAL RESOURCE DAMAGE

(economic-judicial approach)

- Not all negative externalities are regulated. Any regulatory system provides threshold criteria that identify the cases when negative externalities have to be charged to polluters, under the Polluter Pays Principle.

Repayable Natural Resource Damage

WHAT ENVIRONMENTAL DAMAGE ARE WE CONSIDERING?

CONTAMINATED SITES

JUDICIAL APPROACH

- A contaminated site is defined as a site at which substances occur at concentrations: (1) above background levels and pose or are likely to pose an immediate or long-term hazard to human health or the environment, or (2) exceeding levels specified in policies and regulations.

ECONOMIC APPROACH

- Contamination: negative impact determined by human activity (usually production) on natural resource and responsible (polluter) does not pay, but rather are borne by a different entity, such as a community. So they are negative externalities.

ECONOMIC-JUDICIAL APPROACH

- In Italy, these externalities are regulated by internalization tools, when substances occur at concentrations above background levels (threshold criteria).

WHAT ARE THE POLICY GOALS?

Goal #1. to bring back the natural resources and their services at baseline making them able to provide the same level of utility than before the damage occurred.

Goal#2. to incentive, in the time, polluters to invest and avoid the environmental damages.

both goals need a development of the methods which reduces uncertainty in the effective implementation of Polluter Pays Principle, that's why....



GOAL#2 = f (GOAL#1)

- to get the prevention environmental policy goal the ex-post liability regulation system can contribute as well and not only ex-ante ones

REGULATOR

has to have sufficient information, methods and tools to command (and effectively get) the internalization of environmental damages caused

POLLUTER

has to have sufficient information to determine, at least at probability level, the monetary effects which can meet if he causes damage on ⇒ compensations which has to pay.



So to get prevention goal, in the time, the regulator has to reduce the uncertainty in calculating the amount which the polluter has to pay (amount of the compensation)

Internalization and valuation

internalization tools

valuation

monetary amount

1 elimination (or at least limitation) of the sources of damages to bring back natural resources to the baseline

Technical and financial valuation

Clean up cost

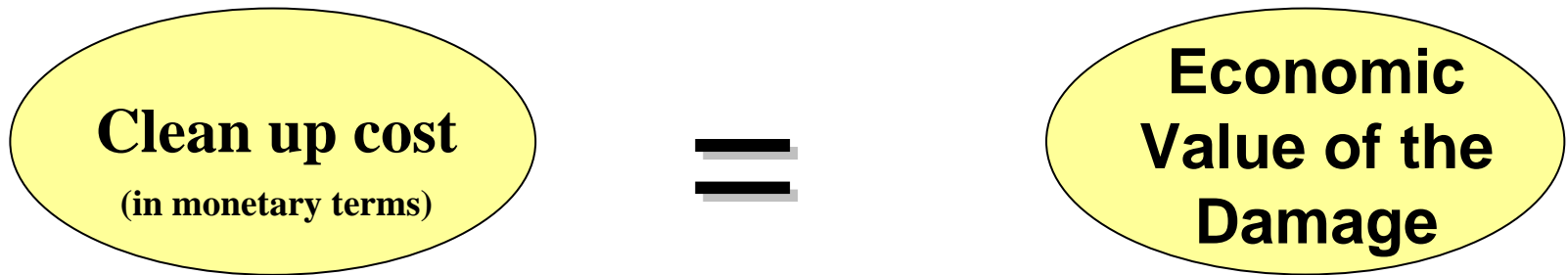
2 monetary compensation to the State (which represents the collectivity)

economic valuation

Economic Value of the Damage

≠ In particular <

If we consider that...



In the case of the contaminated site, the economic value of the damage is always under-estimated

Under-estimate causes

- 1. The meaning of clean up cost**
- 2. Limited consideration of the temporal effect of the environmental damage**

1. The meaning of clean up cost

theoretic hypothesis

- The damage value is at least how much collectivity is **willing to pay** to clean up the damaged resources



- The damage value is just the **use-value** of the natural resource and just for the current collectivity



- The damage value is just the use-value of **some natural resources**



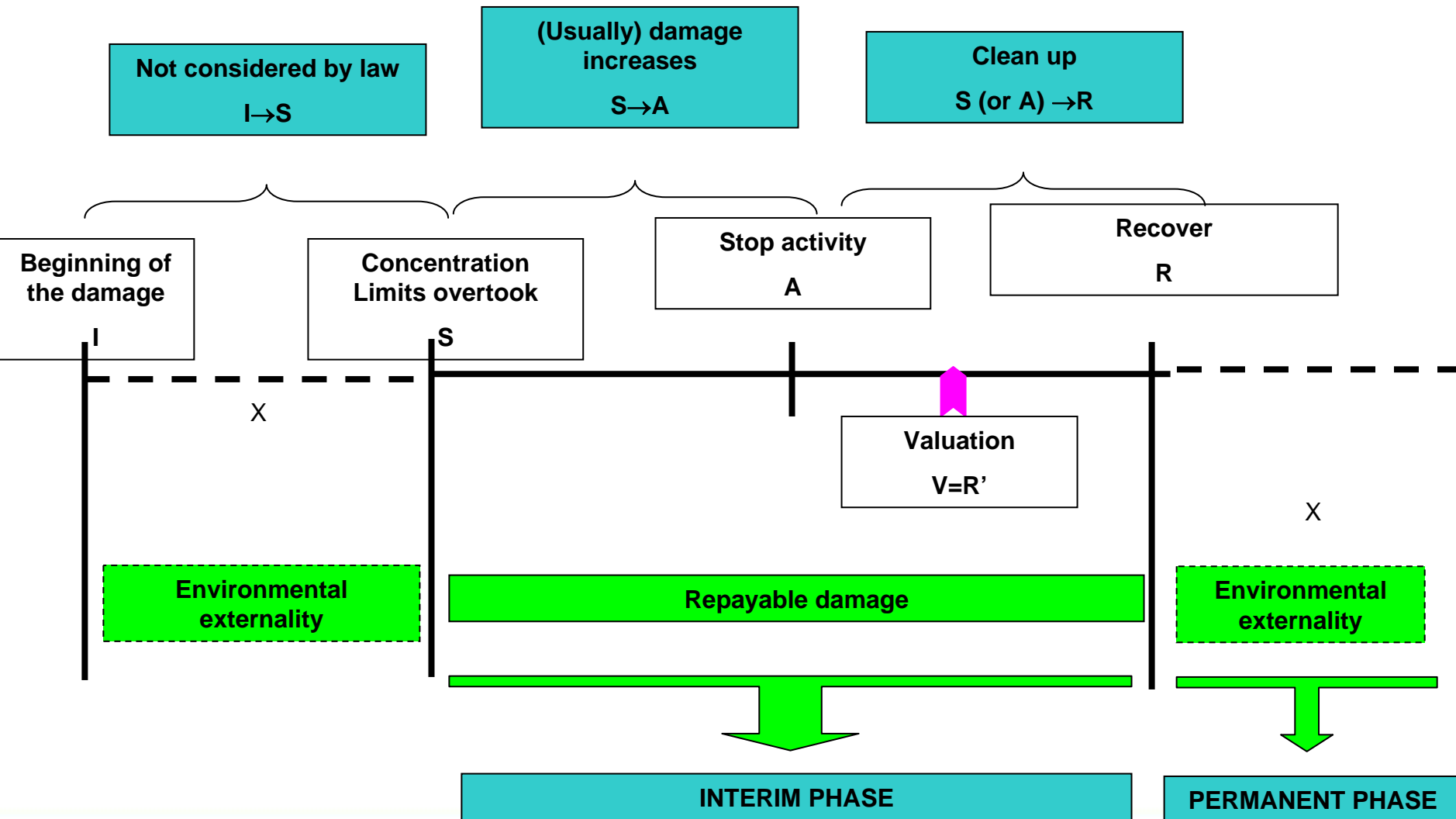
checks

- Requested Interventions by the law
- ...and by the state
- Planned intervention

- The limits of the substances refer to the current use of the natural resources

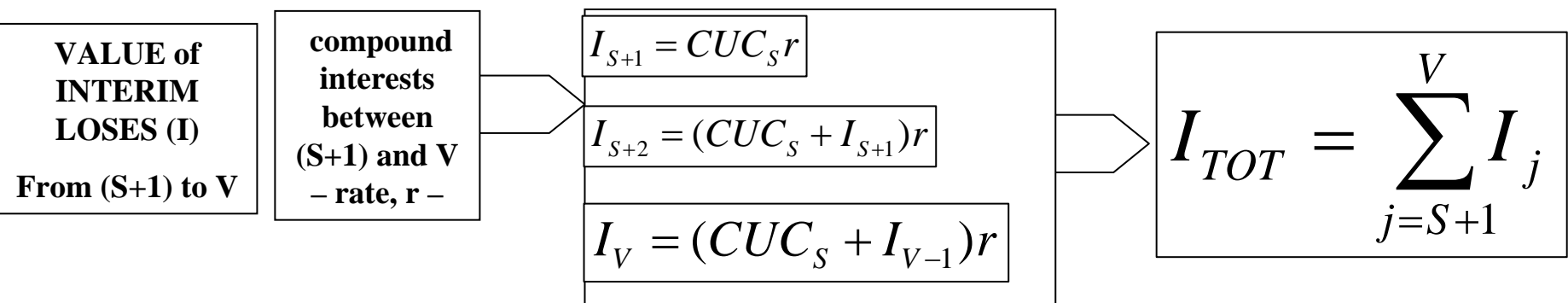
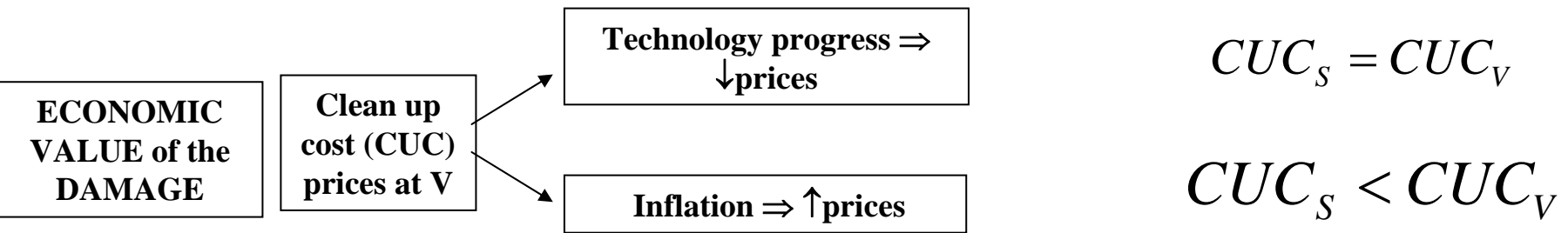
- Just land and water

2. temporal effect of the environmental damage



Contaminated sites: Economic valuation of the damage

hypothesis: no costs from S to V



DAMAGE VALUE (UNDER-ESTASTIMATED)

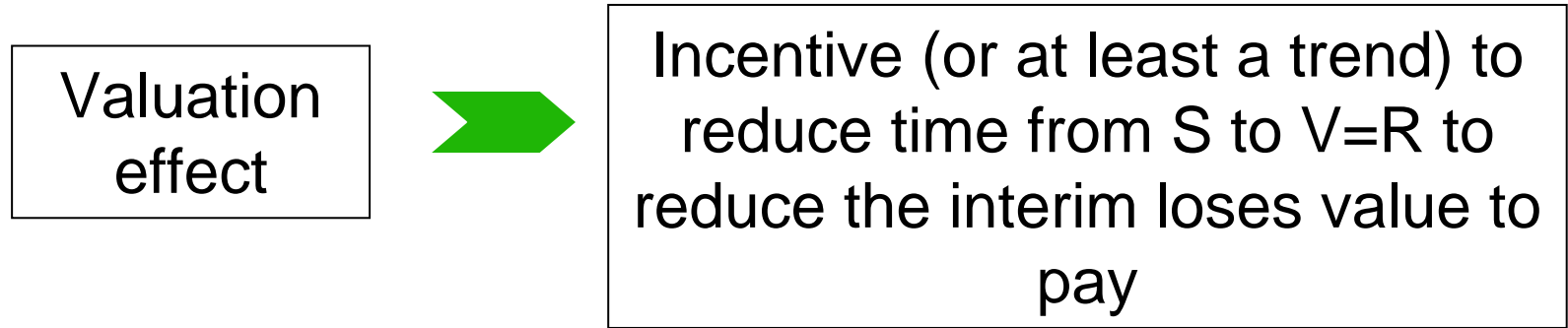
$$DAMAGEVALUE = CUC_V + I_{TOT}$$

COMPENSATION (UNDERESTIMATED)

$$DAMAGEVALUE = (CUC_V - CUC_0) + I_{TOT}$$

Borne costs from S toV or agreement between polluter and state

POLICY GOAL CONSEQUENCES



When doesn't it work? When...

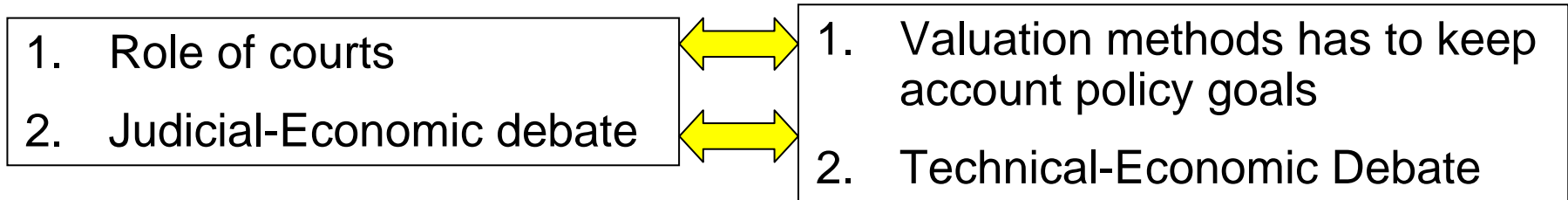
Polluter gain (+interests) > Compensation value

- polluter gain is not the value of the damage (**effect**)
- polluter gain is a monetary measure of the **cause** of the damage

Think about “OPTIMUM FINE”....

Conclusion

- Economic valuation has an effective role in the environmental policies
- Economic valuation are not the only uncertainty factors which affect the effectiveness of the environmental policy goals.



Next researches in APAT...

- Remove restricted hypothesis. Studies on contaminated sites (NPL)
- Definition of interest social rate to value interim loses
- Standardization of the valuation methods