



LINKS BETWEEN SUSTAINABILITY & ENVIRONMENTAL MANAGEMENT ACCOUNTING

“Accounting For Sustainable Development”

“Putting the Right Numbers in Sustainable Projects”

**Second South African – German Dialogue on
Science for Sustainability
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STRUCTURE OF PRESENTATION

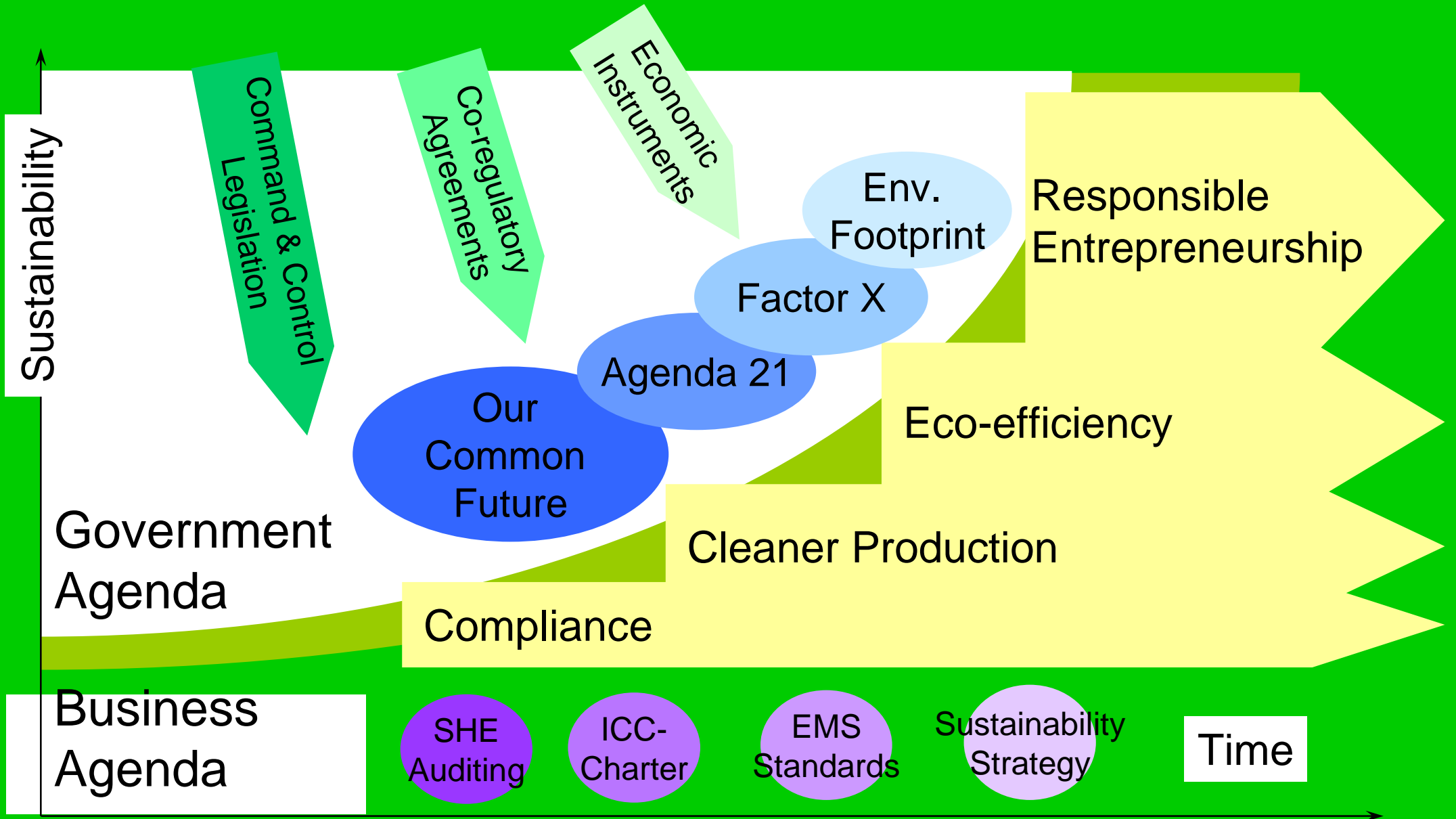
- 1) Why should organizations care about sustainability issues?
- 2) Concepts & rationale of environmental management accounting
- 3) EMA applications
- 4) Integration of EMA with other environmental tools
- 5) Conclusion

“An understanding of the business value to be gained from efficient use of natural resources is an important first step towards sustainability”

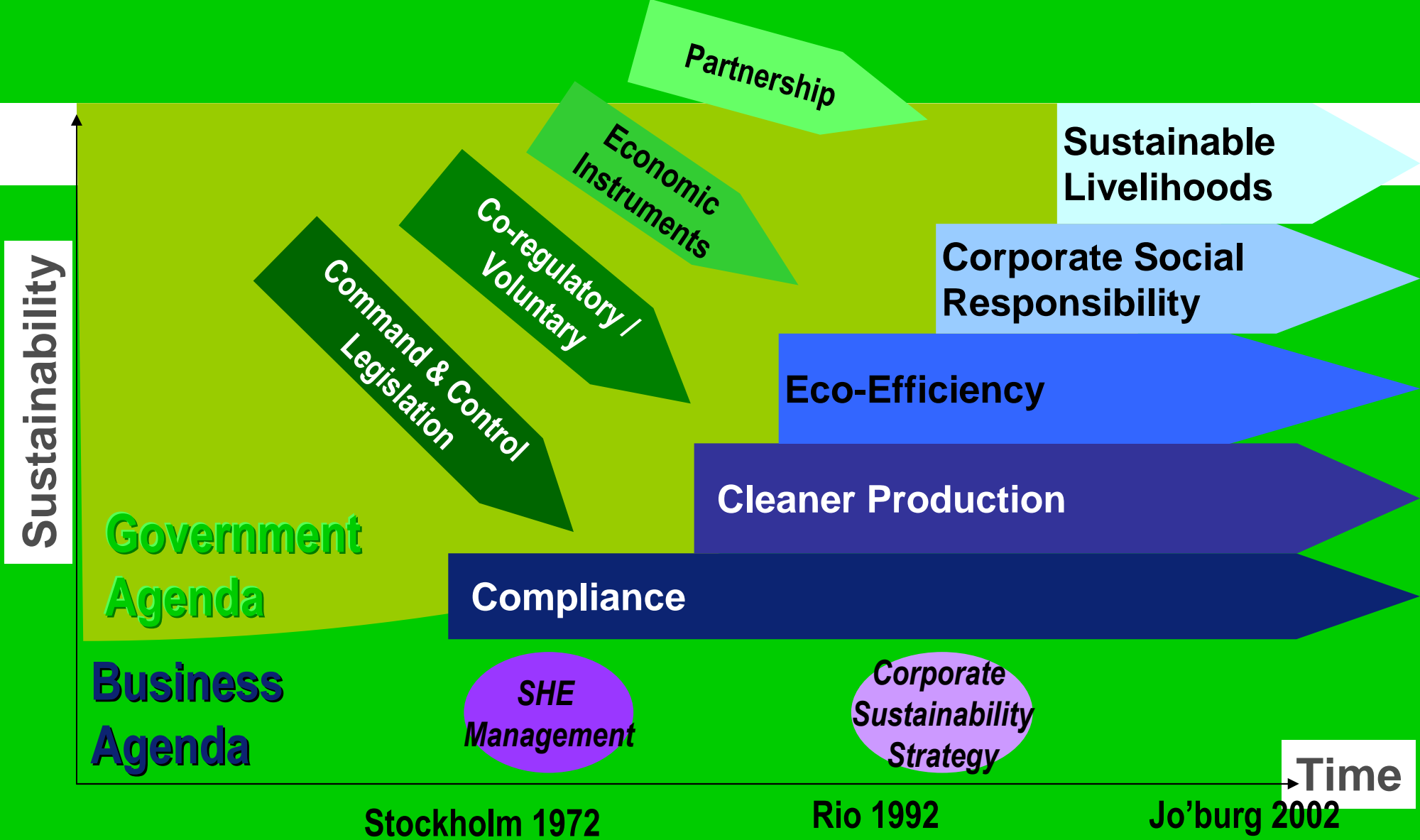
(J. Lash, President of the World Resources Institute)



1. WHY INTEREST IN SUSTAINABILITY ISSUES

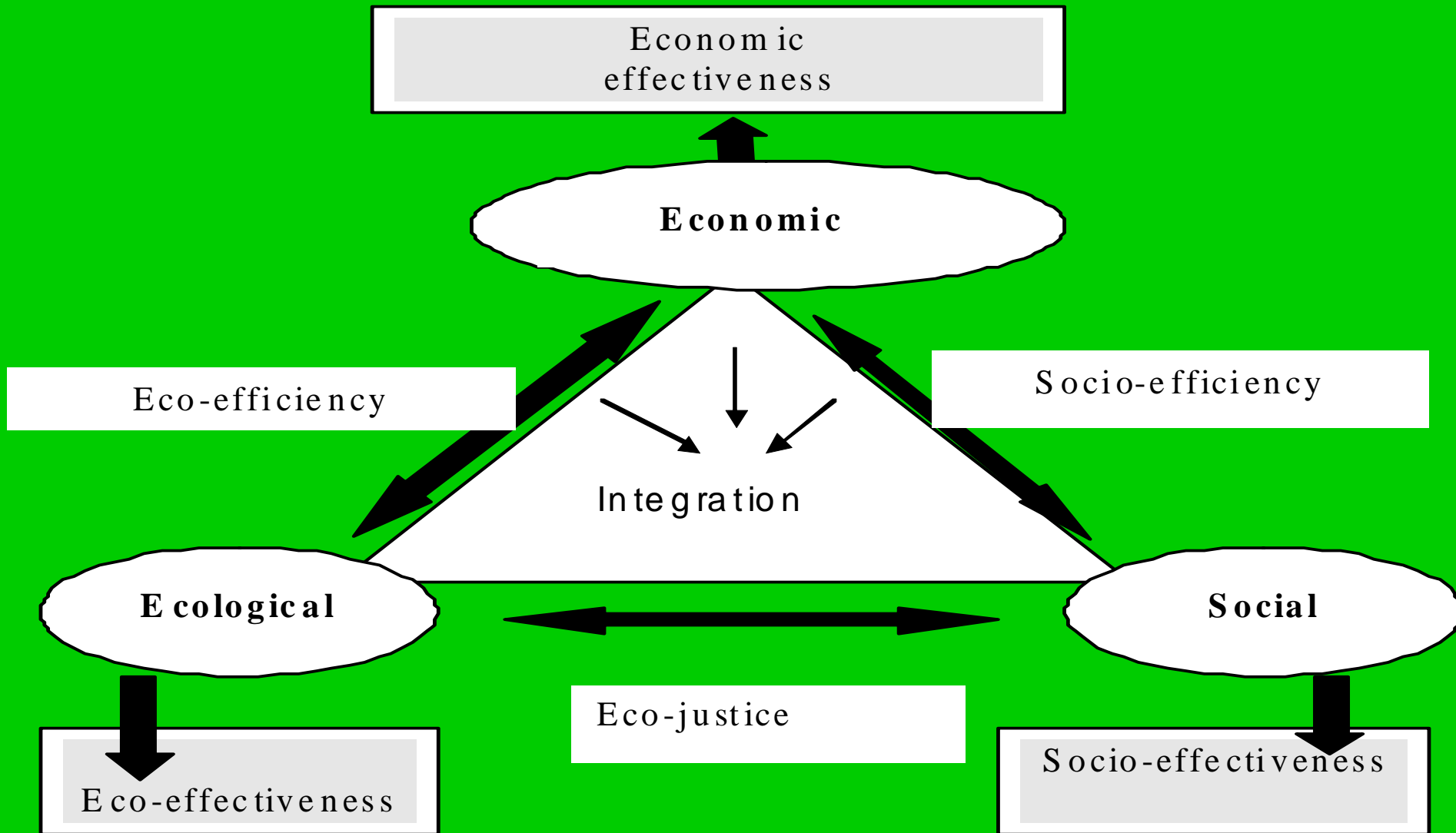


1. WHY INTEREST IN SUSTAINABILITY ISSUES



1. WHY INTEREST IN SUSTAINABILITY ISSUES

Triangle of sustainable development



Source: Schaltegger, Bennett and Burritt (2006:8)



1. WHY INTEREST IN SUSTAINABILITY ISSUES

South Africa's (SA) Environmental legislative framework:

- Constitution of the Republic of South Africa 1996, (Act 108 of 1996)
- National Environmental Management Act 1998, (Act 107 of 1998)
- Johannesburg Plan of Implementation (2002)
- Minerals and Petroleum Resource Development Act, (2002)
- Framework for considering market-based instruments to support environmental fiscal reform in South Africa (2006)
- Strategic Framework for Sustainable Development in South Africa (2008).
- Budget speech 2007, 2008, 2009.

Others:

King Report I, II and III (1994, 2002, 2009); JSE Listing Requirements; AC 130 – Provisions, contingent liabilities & assets; SA Audit Practice Standard 1010; IFAC/SAICA Sustainability Framework 2008

All re-affirming SA commitment to implement Agenda 21 and sustainable development



2. EMA CONCEPTS & RATIONAL

EMA was conceived in recognition of some of the inadequate consideration of environmental costs in internal decision-making of conventional management accounting practices:

- The unintentional "hiding" of many environmental costs in overhead accounts.
- Inaccurate allocation of environmental costs from overhead accounts back to processes, products, and process lines
- Inaccurate characterisation of environmental costs as "fixed" when they may actually be variable (or vice-versa)
- Inaccurate accounting for volumes (and thus costs) of wasted raw materials,
- The actual lack of inclusion of relevant and significant environmental costs in the accounting records at all
- Poor communications/ links between accounting & other departments (IFAC, 2005)



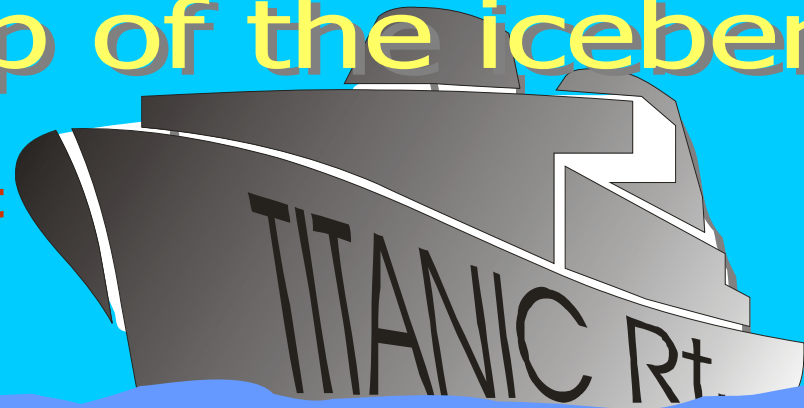
2. EMA CONCEPTS & RATIONAL

Environmental costs can be like an iceberg, with only a small part of the cost visible

**Visible environmental costs
only build the tip of the iceberg**

DISPOSAL COSTS

- ▶ **waste handling and transport**
- ▶ **finest**
- ▶ **mitigation, cleaning**



PRODUCTION COSTS OF RESIDUALS

- ▼ **purchase cost of wasted materials**
- ▼ **price of lost energy**
- ▼ **using production capacity**
- ▼ **wages for process and separate**
- ▼ **cost of temporary storage**

2. EMA CONCEPTS & RATIONAL

EMA is broadly defined to be the identification, collection, analysis, and use of two types of information for internal decision-making:

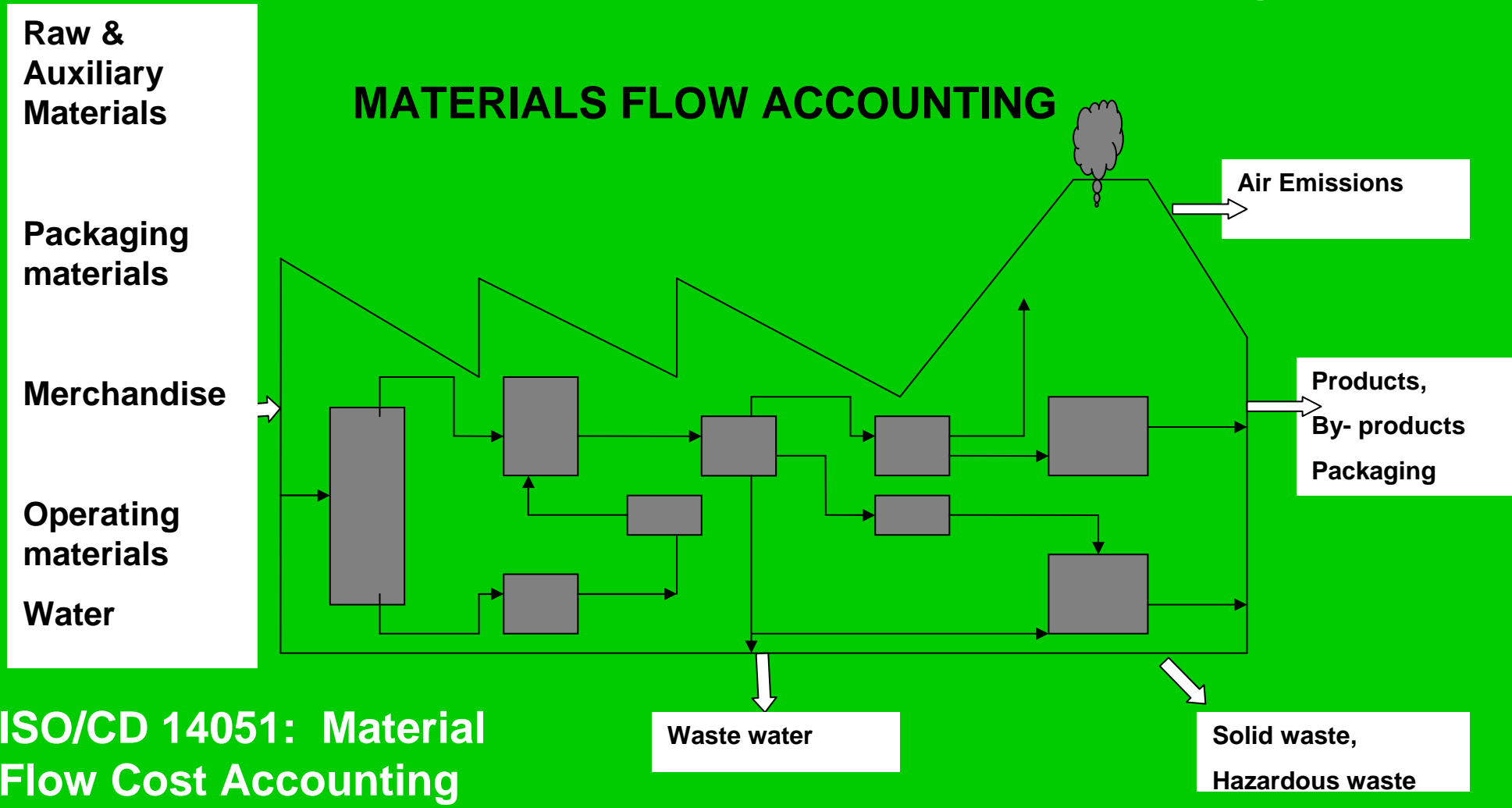
- Physical information on the use, flows, and fates of energy, water, and materials (including wastes) and
- Monetary information on environment-related costs, earnings, and savings. (IFAC, 2005:19)

When applied correctly, EMA can lead to environmental cost savings, cost avoidance, liability reductions and other significant financial benefits



3. EMA APPLICATIONS

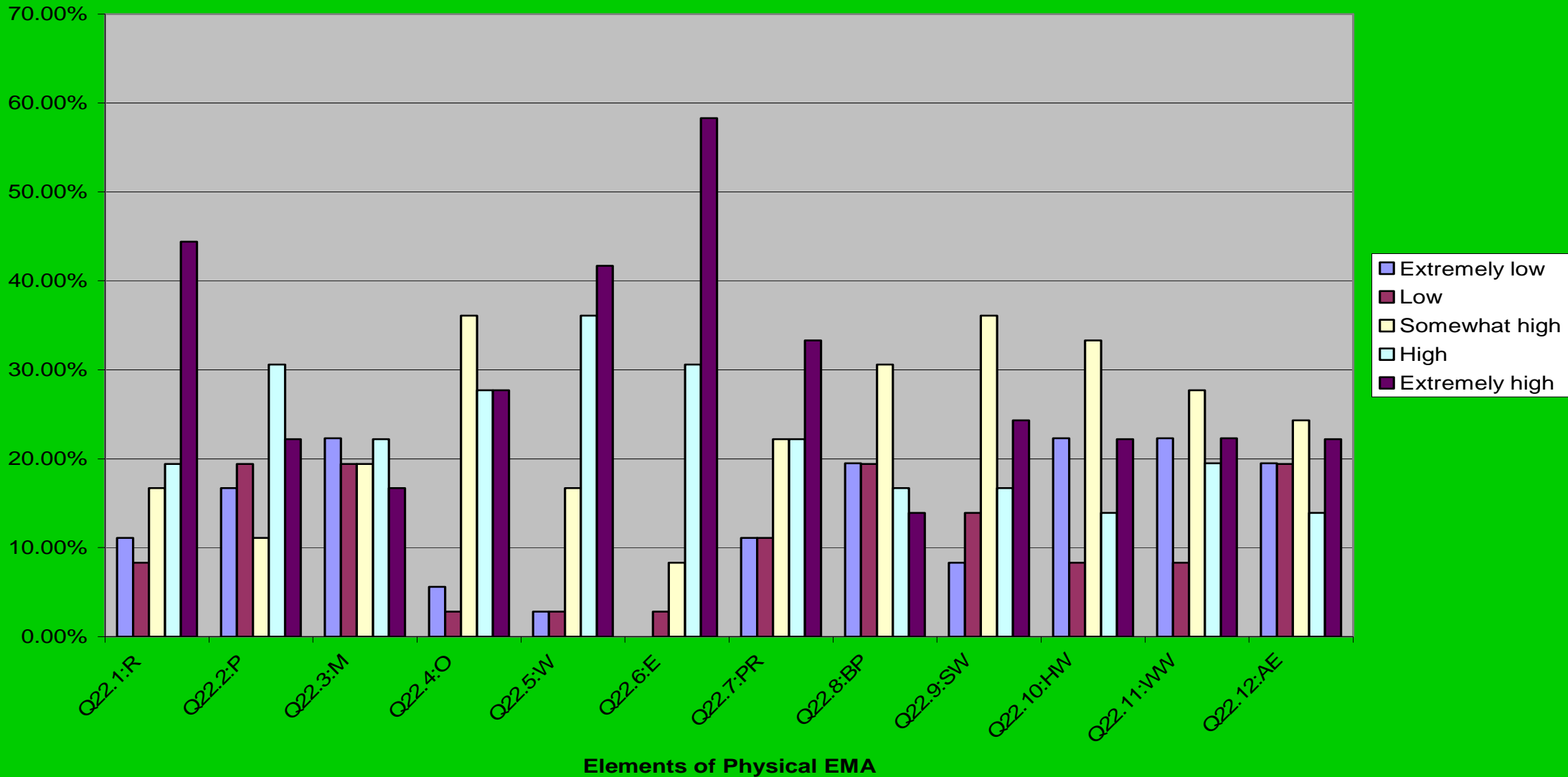
PHYSICAL EMA: Physical environmental management accounting (PEMA) is the generation and recording of physical data on material and energy input, material flows, products, waste and emissions for internal decision-making.



ISO/CD 14051: Material Flow Cost Accounting

3. EMA APPLICATIONS

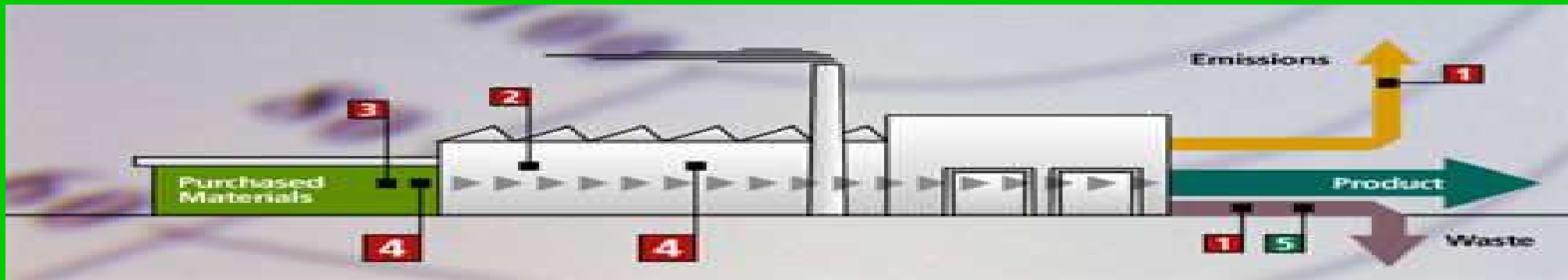
Figure 6.1: Physical EMA



R= Raw and auxiliary materials; P= Packaging materials; M=Merchandise; O=Operating materials; W=Water; E=Energy; PR=Products; BP=By-products; SW=Solid waste; HW=Hazardous waste; WW=Wastewater; and AE=Air emissions

3. EMA APPLICATIONS

MONETARY EMA - is a sub-system of environmental accounting that deals only with the financial impacts of environmental performance. It allows management to better evaluate the monetary aspects of products and projects when making business decisions.

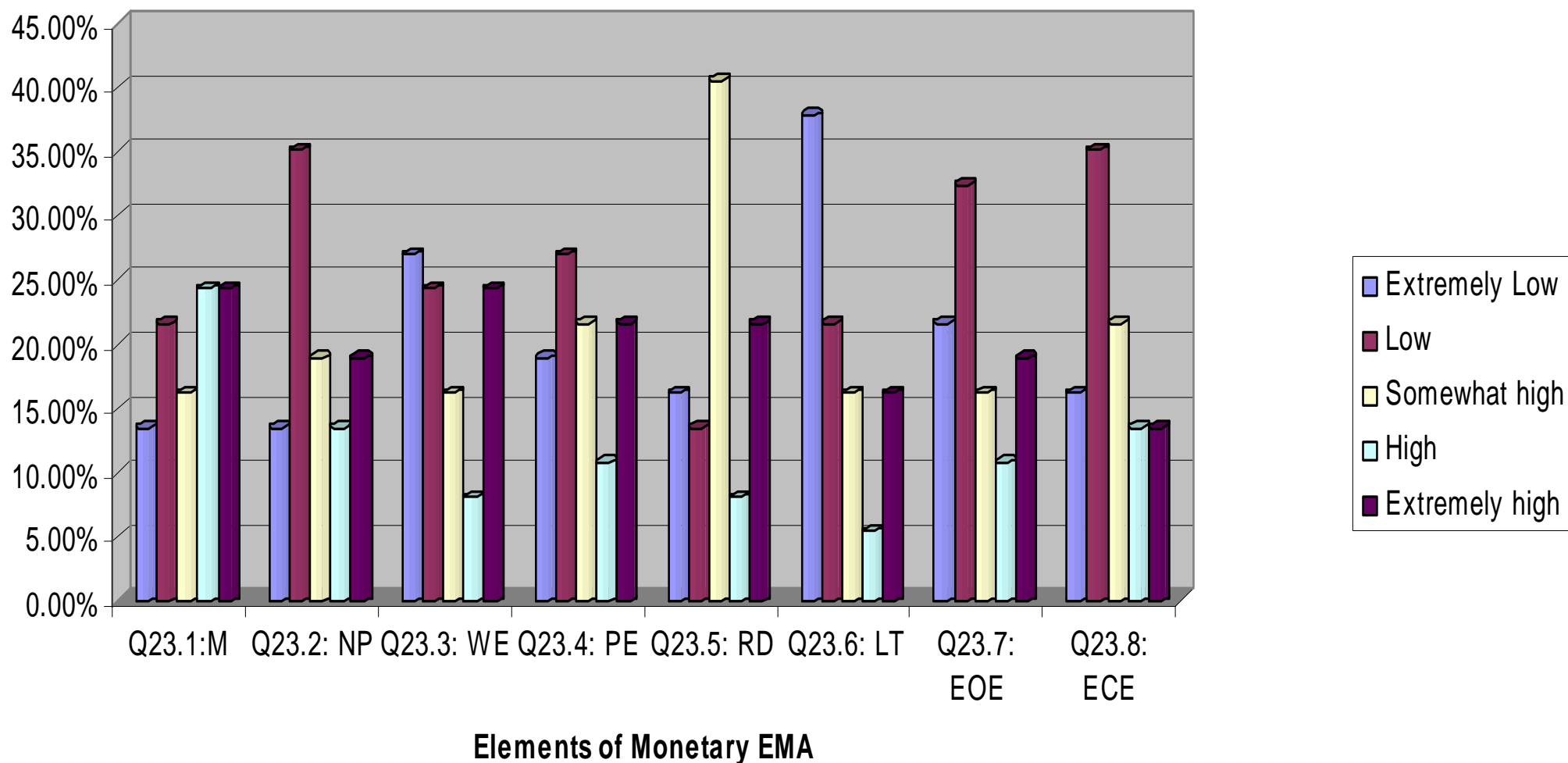


Source: Jasch (2001)

1. Conventional waste disposal and emission treatment costs, including requisite plants and equipment, operating materials and personnel
2. Expenditure for process-integrated prevention of environmental impacts and costs of corporate environmental management
3. Calculation of wasted material purchase value
4. Evaluation of non-product output (waste, effluent, air pollutants) including proportionate share of manufacturing costs
5. Environmental revenue from sale of by-products and waste material

3. EMA APPLICATIONS

Figure 6.2: Monetary EMA



Key: M = Material cost of product outputs; NP = Material cost of non-product output; WE = Waste & emission control costs; PE = Prevention & other environmental management costs; RD = Research & development costs; LT = Less tangible costs; EOE = Environmental operating expenditure; ECE = Environmental capital expenditure.



3. EMA APPLICATIONS

FRAMEWORK FOR ENVIRONMENTAL COST ASSESSMENT: KLOOF MINE		
SUMMARY OF MONETARY VALUES		
R		
1	MATERIALS COSTS OF PRODUCT OUTPUTS	32,088,482
2	MATERIALS COSTS OF NON-PRODUCT OUTPUTS	420,098,471
3	WASTE AND EMISSION CONTROL COSTS	20,734,082
4	PREVENTION COSTS	6,578,534
5	REHABILITATION AND CLOSURE COSTS	145,402,988
6	GENERAL ENVIRONMENTAL MANAGEMENT	10,201,042
7	LESS TANGIBLE COSTS - ignore for this round	-
8	ENVIRONMENTALLY RELATED EARNINGS AND SAVINGS	-7,253,360
	TOTAL NET ENVIRONMENTAL COST	627,850,239
	Total expenditure	3,636,322,948
	Environmental cost as % of total expenditure	17%
	Gold produced [kg]	28,706
	Environmental cost per kg gold produced	21,872

- EMA assessment creates awareness of real environmental costs
- (Godschalk et al, 2007 – EMAN-Africa)



3. EMA APPLICATIONS

Think whether or not your/an organisation has good estimates of:

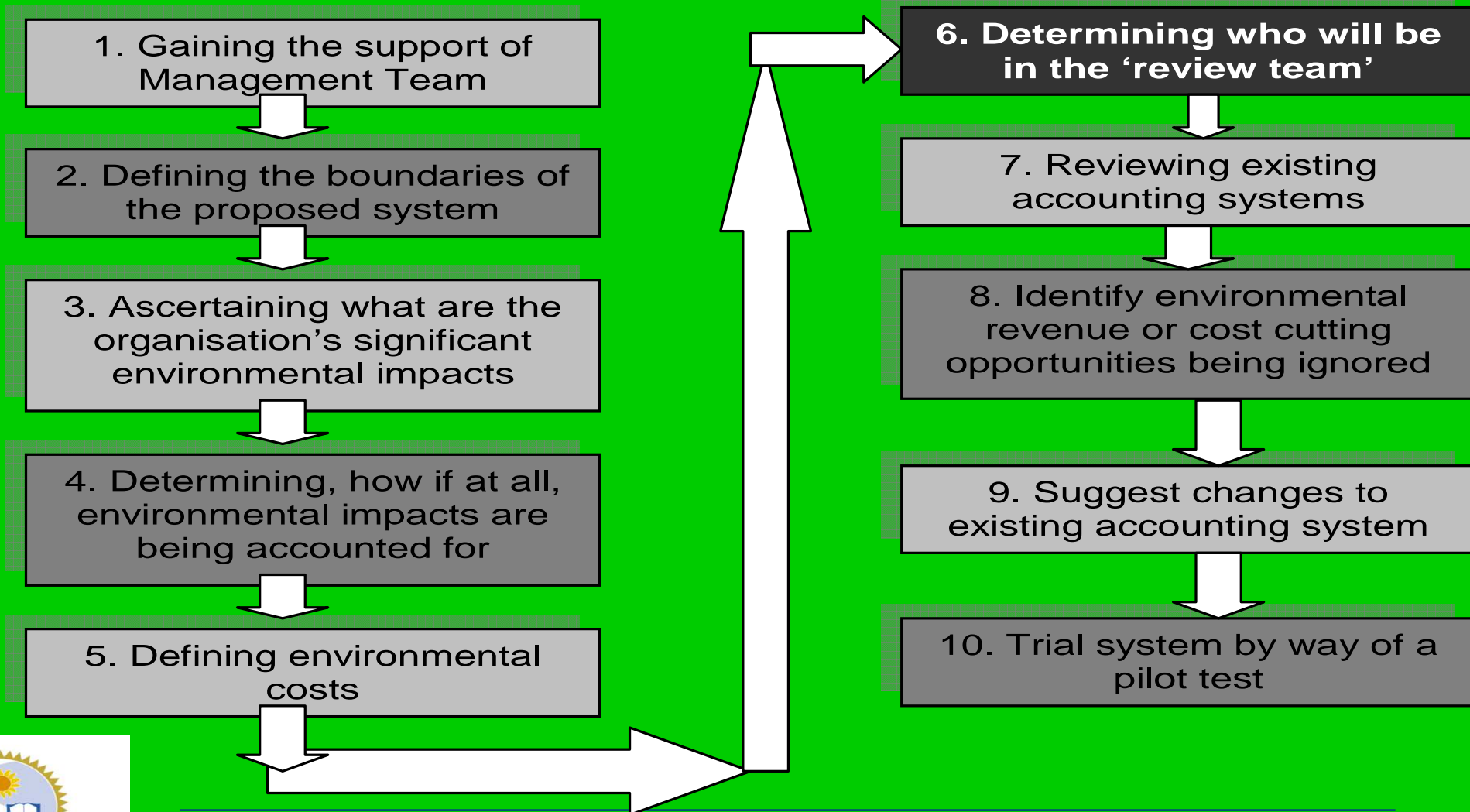
- ❖ The amount and value of raw materials lost in the form of waste (wastewater, solid waste, air emission)
- ❖ The true costs of waste management (cost of waste handling, recycling, disposal and treatment)
- ❖ Related items such as insurance costs, potential environmental liability, and the likely costs of future regulation.

If the above information is not readily available or not sure how good the estimates are, consider implementing an EMA project using the following steps:



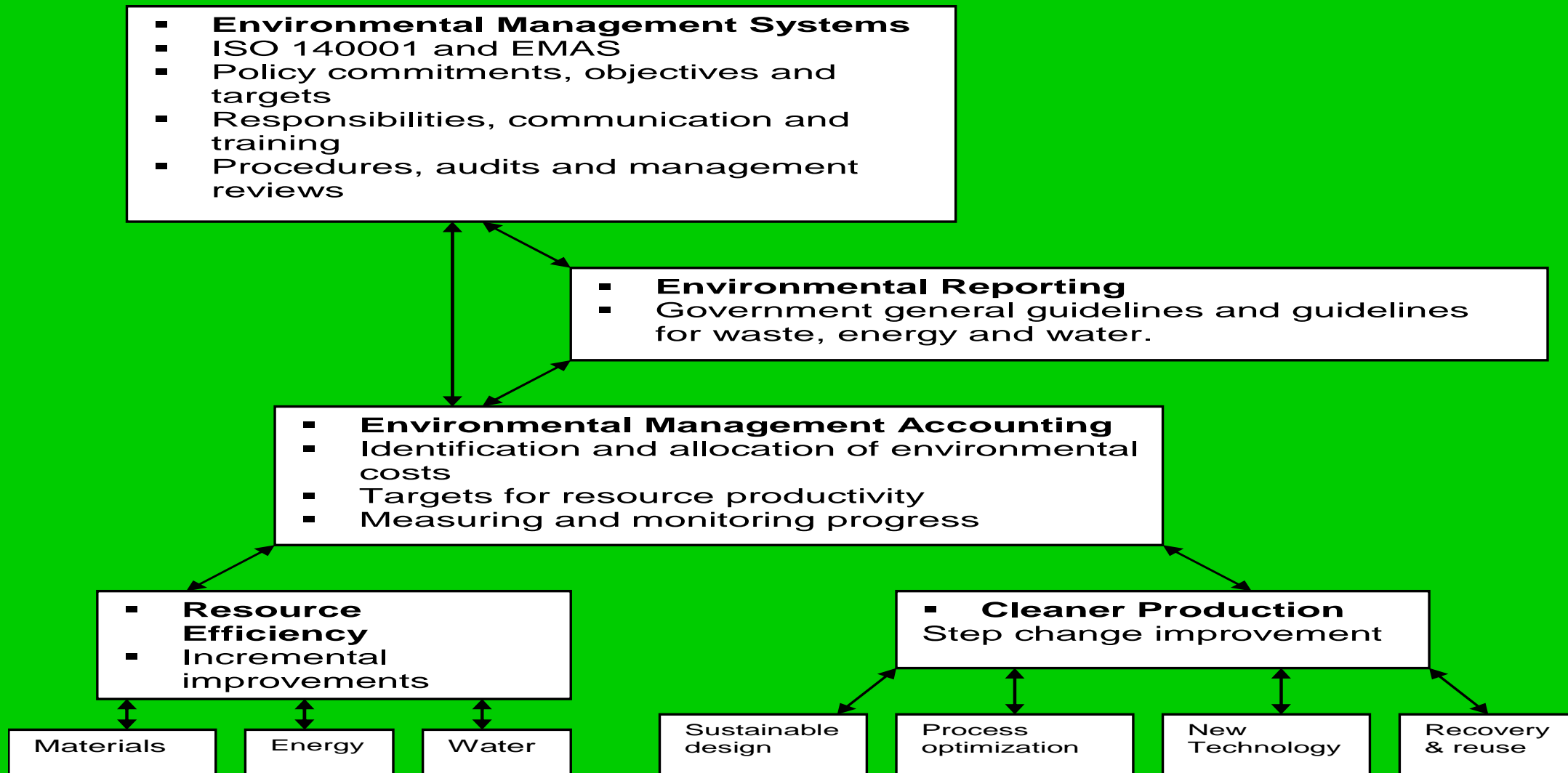
3. EMA APPLICATIONS

Steps for implementing environmental management accounting



4. INTEGRATING EMA WITH OTHER SUSTAINABILITY TOOLS

An integrated Environmental Management Accounting Framework 1



Source: Developed from Alvarez-Rivero, (2006)

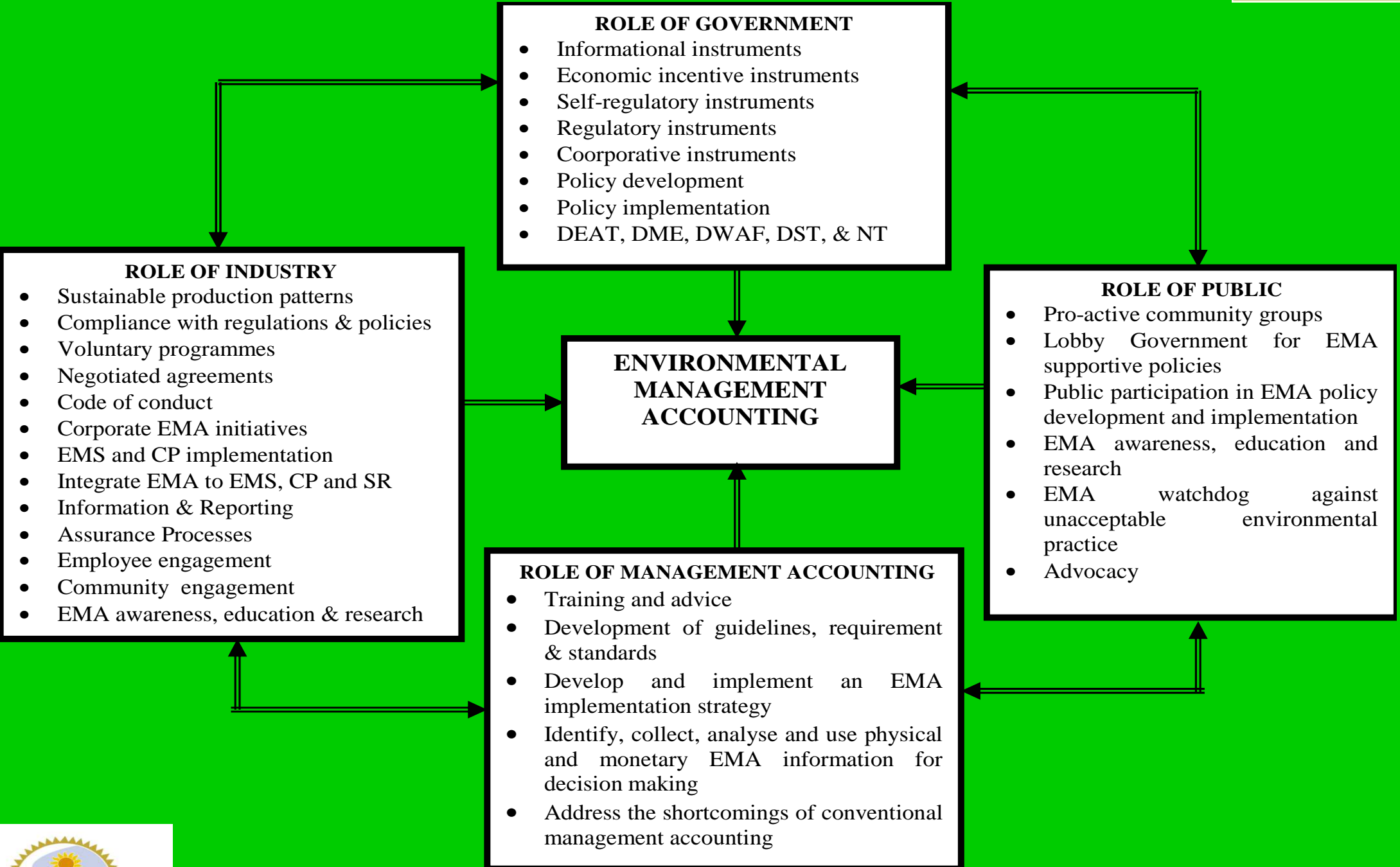
4. INTEGRATING EMA WITH OTHER SUSTAINABILITY TOOLS

- Environmental accounting will produce the most benefits when it is integrated with other environmental management tools. In particular, EMA will increase the advantages that a company may gain through the implementation of EMS.
- Linking EMA with cleaner production and environmental reporting will depict the financial gain that can be achieved by applying these tools, since contingent liabilities represent major environmental, business and financial risks for companies. EMA is excellent for supplementing risk management programmes, as well.

The elements of EMA **may**, in some cases, already be found in organisations in South Africa, however, the information may not be quantified in accounting figures or used by accountants, but the techniques for gathering environmental impact information may be part of the environmental management system (EMS), cleaner production (CP), waste minimization, or other operational systems of an organization .



5. CONCLUSION



5. CONCLUSION

Life , wealth and future - sustainability is for us all.
Environmental Management Accounting is an obligation to
sustaining nature and businesses.

!!!

Sustainability is

a journey

not a **destination**



See:

www.eman-global.net

www.eman-af.net

THANK YOU