UNITED
NATIONS

TD

United Nations Conference
on Trade and Development

Distr.
GENERAL

TD/B/ITNC/AC.1/5
5 January 1995

Original: ENGLISH

TRADE AND DEVELOPMENT BOARD

Intergovernmental Working Group of
Experts on International Standards
of Accounting and Reporting
Thirteenth session
Geneva, 13 March 1995
Item 4 of the provisional agenda

THE INTEGRATION OF ENVIRONMENTAL PERFORMANCE INDICATORS WITH FINANCIAL INFORMATION BY TRANSNATIONAL CORPORATIONS

Report by the UNCTAD secretariat */

SUMMARY

This report is on a study that was undertaken to examine the potential for integrating financial and environmental performance reporting. The analysis is supported by case studies of six Swedish enterprises. It has been concluded that the integration of business and environmental performance reporting is likely to develop for several reasons. It will probably not, however, come about as add-on information to traditional enterprise reports. The potential is to be found in refining the format and structure of performance reporting in general. Enterprises with clear and understood site dependency, low exposure to short-term pressures from the financial markets, high integrity in management, materially viable production processes, and quality-conscious customers will be early in developing new performance measures. Reporting practices which support internal control in enterprises are a sound basis for the development of information disclosures. Agencies within governments should be prepared to differentiate their policies regarding transnational corporations. However, the conditions for sustainable development differ among enterprises, industries, countries, and regions of the world. Governmental activities supporting a sustainable development should differ accordingly.

*/ This report was prepared with the assistance of Sören Bergström, Bino Catasus, Maths Lundgren and Hans Rämö, all of the Stockholm House of Sustainable Development.

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INTRODUCTION

1. The Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR) has previously investigated the disclosure of environmentally relevant information by transnational corporations. The findings so far have indicated a general impression of sluggishness of concerns about environmental issues in the business agenda. With this background, ISAR decided to study the subject of environmental disclosures by enterprises from another approach: the objective was not to obtain a quantitative record of certain corporate practices but to use a few case studies as a point of departure for a qualitative analysis of potentials in the field. The main focus in this report is ways to integrate environmental performance indicators into a framework of general business performance measures.

2. It is initially necessary to elaborate on the context of the issue. Who are the users of company reports? What reasons would justify an integration between financial and environmental reporting? To what extent should internal control considerations influence standards for external disclosures (and the other way around)? Generally, environmental performance indicators may be used for several reasons such as an assessment tool within internal environmental management systems, a way to inform potential investors and shareholders, a media for dialogue and negotiations with authorities and with suppliers and customers, etc. Still it is an open question about whether that kind of information should be integrated into regular company reports, if it should be integrated in some other way or if it is better if the information is reported separately in some way.

3. The financial performance of transnational corporations (TNCs) is important to financial markets world wide. Participants in those markets tend to treat corporations in a standardized way which is one reason behind claims for rigor in company reports; people with no experiences with the company as a physical entity whatsoever should get a proper impression of it.

4. Environmental performance is traditionally not in the set of relevant information for the investing community. Until recently environmental performance was only a local issue: smoke from the chimney, chemicals in sewage water and noise from traffic. Politically, the issues have for a long time been important at the municipality level, while international regulation of these activities has occurred only lately. Neither the local authorities nor international bodies have had any specific use for the integration of business and environmental performance.

5. Many persons consider that the use of integrated performance measures should be part of internal control systems in the first place. Responsive enterprises with a clear strategic view of their role in world-wide throughput of matter and energy, with policies for ethical sales, climate change, local responsibilities, throughput thrift, etc., will most certainly need reports on performance covering all such aspects. Then integration is important.

6. After the world conference on the environment in Brazil in 1992, the idea of sustainable development as the first priority in all political assemblies and as the prime guideline for individual and enterprise actions became generally accepted, at least in principle. One practical consequence is a need for responsive TNCs. Governmental and international bodies must then form a supporting environment for such enterprises. Disseminating the experiences of ways to integrate performance reporting may both facilitate access to "responsive" practices and, indirectly, raise the general expectation for enterprises to be responsive. If this is successful, it is likely to lend support for international standards for environmental regulations and taxation. That will, alongside explicit standards for performance information disclosures, give responsive enterprises a competitive advantage. It will also give readers of advanced performance reports solid guidelines for how to interpret the facts and figures.

I. THEORETICAL FRAMEWORK

7. It is often assumed that financial performance is generally considered to be of primary interest and environmental performance tends to get isolated and downgraded if it is expressed in a mode very different from generally used economic language. The study will now consider the accuracy of that assumption and ways to integrate environmental and financial considerations in enterprise reports.

8. In the literature there are two broad classifications for management behavior: one can be recognized as "empirical" and the other as "normative". The empirical classification is based on propositions of the following types (Andrews 1949, Cyert & March 1963, Chandler 1977, Earl 1983, Douglas 1986, Drucker 1993 and others):

(a) Companies try to keep their risks low. Business management is seldom gamesmanship. When risks are taken they are out of perceived necessity.
(b) Companies aim at long term survival. One should expect special reasons when shortsightedness prevails in management thinking.
(c) Companies behave "ecologically" in relation to their environments; they try to adapt to environmental changes and they try to make the environment adapt to the company.
(d) Leadership in companies is idealistic. Political and technical ideas, personal dreams and cultural blindness form strategies and company structures. Cost-and-revenue arguments normally appear late in decision processes.
(e) Decision processes in companies are most often characterized by limited rationality. The idea of rationality is almost never abandoned, but relatively few alternatives are seriously considered when making decisions and all criteria are seldom, if ever, weighted against each other.

9. The empirical model generally provides a favorable picture of company behaviour. These features can be expected to be found in healthy and prosperous companies where management has considerable integrity. That integrity may get challenged in various situations. One such challenge occurs when the company in question is a subsidiary of a transnational group and the parent company management prescribes specific behavior and performance at the subsidiary level.

10. Functional differentiation within a group may also be reflected in a distorted view of the real conditions of the operations in each local company. A company which is eager to attract money from the financial markets (whether it is debt or equity money) becomes dependent on the speculative short-sightedness that guides those markets. Financial operations provide a high opportunity cost for the internal use of money and may thus influence corporate structures. Generally, when dealing with economic hardships, managements have to act with less long-term considerations. Then the empirical evidence comes close to the standard assumptions which direct the normative model.

11. The normative model prescribes company characteristics such as price orientation, reactionary rather than innovative behavior, short-term profit maximization, and a minimum legal compliance attitude to environmental issues.

12. When debating company roles in achieving sustainable development, the normative model dominates the scene. Consequently, the focal issue most often is about forcing companies considered as being extremely short-term oriented to disclose environmental and long-term information.

13. This study acknowledges this background, but still gives the empirical model a chance by avoiding descriptive techniques which put the environment outside business considerations at the outset. Each enterprise in the case studies is described as a value-driven set of capital and operations, which are defined as the *corporate effort*. *Values* in this respect may be recognized as specific service qualities strived for, shareholder claims or other strategic targets as they are articulated by corporate management. In this way the environment appears

on equal footing with other resources which are utilized and/or assumed: the specific set of capital and operations under management requires a throughput of human, financial and material resources. Figure 1 presents a formal picture of the basic scheme in the case studies.

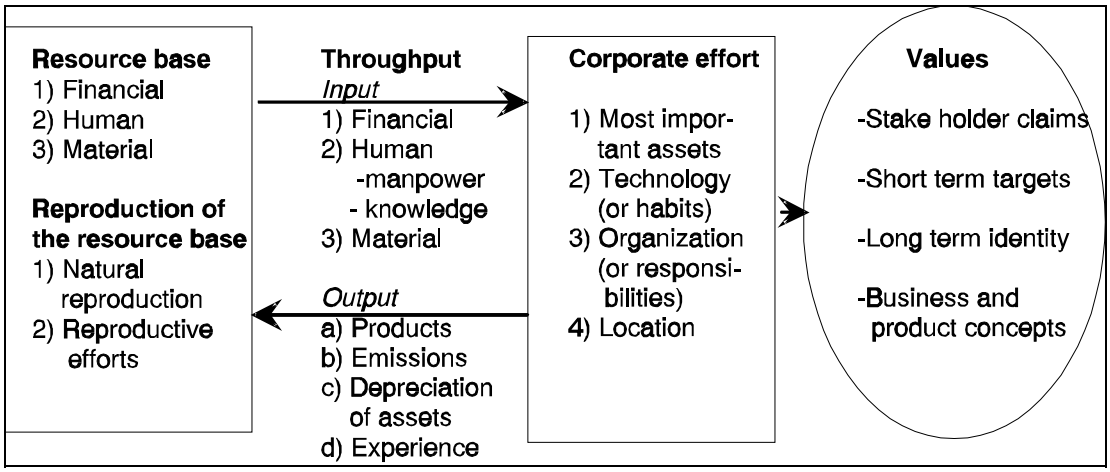

Figure 1: The general structure in the case studies.

II. SUSTAINABLE DEVELOPMENT AS A MANAGERIAL ISSUE

14. How does the environment appear as a managerial issue? An enterprise may reduce air emissions by a certain percentage or volume or improve the quality of its emissions. However, if this enhancement is at a significant cost and has consequently led to an increase in investment, how should this be best reported? This question has an obvious time dimension since the investment in a long-run context may both save costs and increase revenues, while it may result in a loss if forced on an enterprise with short notice. Alternatively, energy consumption may be reduced through a more fuel-efficient industrial process which may also result in cost savings in the long run. Another example could be more stringent pollution regulations which in turn lead to more expensive industrial processes and subsequent increases in operating costs.

15. Figures on different measures such as energy consumed, percentages of recycled materials used, output of pollutants, etc. are frequently used to indicate the environmental part of the issue. But what about the business part?

16. From this general background it can be concluded that environmental considerations will play an increasingly important role in corporate behavior in the future. Thus, it is in the interest of management to integrate environmental and general performance information of the enterprise with each other. Technically, such integration can be made in three broad ways:

(a) Reductionist approach. Information available in various physical measures, financial figures, technical estimates, etc., are reduced to one of those measurement units -- typically money, energy or pollutants units;
(b) Holistic approach. All information is put into a single image -- typically an abstract numerical index; or,
(c) Structured approach. A regular use of a rigorous format (typically an accounting format) which facilitates the interpretation of various performance indicators and their use for decision making purposes.

17. Behind such technical differences more fundamental differences in the way to perceive a corporation may be found. Reductionist approaches may be worth consideration in compliance-oriented companies when sustainable development and environmental relations appear as marginal changes to ordinary business habits. Structured approaches, on the other hand, open up a whole field of radical

possibilities, for instance to analyze the company as an ecological entity. If enterprises were to be analyzed as ecological entities, entirely new ideas would follow. New business opportunities might be identified as well as industry concepts, social dynamics and ways to understand economic relations.

III. CORPORATE ENVIRONMENTAL REPORTING

18. The study, "Environmental Management in Transnational Corporations" (United Nations, 1993), reports on an extensive survey of transnational corporations. The report concludes that the national legal and cultural environment from which a transnational company comes from is significantly important for management style and enterprise strategy. Any place in the world is specific in the respect that "all business is local". To set the conditions for environmental reporting, and especially for discussing options for integrating environmental and financial information, much specific company information is needed. One has to understand the kind of environmental conditions which prevail to judge what comparisons can be made and what methods can be used.

19. In the literature there is not much empirically-based evidence on company practices involving the relationships between financial and environmental performance. The surveys conducted by the United Nations, for the most part, documented a low profile regarding any environmental disclosures among the transnational companies studied. The 1992 survey report covers 222 transnational companies on accounting for sustainable development and environmental disclosure in general. Only 7 companies (3%) had amounts of their environmental debts in their annual reports. Other figures were more common:

(a) 14% had footnotes in their balance sheets on environmental conditions;
(b) 62% disclosed information on environmental improvements;
(c) 64% had text on financial outcomes of environmental problems in their annual reports;
(d) 70% told the general public about their environmental policies; and,
(e) 86% had at least something to say about the environment.

20. The United Nations report concluded that the general quality of public environmental information is low, never audited and very seldom quantified. There is no information for making comparisons between companies intelligible:

> "...while transnational companies are aware of environmental issues, their disclosures remain qualitative, descriptive, partial and difficult to compare. Not only was there little quantitative information but often no time period was attached to the qualitative information. Moreover, there was no relationship drawn among amounts spent, results achieved and targets set. Therefore, it was not possible to gauge the environmental performance of the corporations, let alone the impact of their environmental activities on their financial results." (United Nations, 1992, page 4)

21. The fact that the biggest companies do so little to raise the visibility of their corporate culture could be attributed to their low aspirations in the field, but, says the United Nations report, one should not underestimate the difficulties at hand. When estimating environmental debts and environmental costs one has to consider the following:

(a) The debts are uncertain because they are determined by future laws and regulations;
(b) They extend over a longer period than most debts and costs;
(c) Invisible critical thresholds make cost and debt functions discontinuous;
(d) Environmental damage is harmful to many. Management can never know absolutely which persons are affected, or how many of them may claim compensation;
(e) If an enterprise goes beyond the levels required by the law in its long-term responsibilities there will usually be a trade-off position against

short-term profitability.

22. The United Nations study also points to differences in legislation among countries. Accounting practices differ from one country to another regarding what is accepted as ordinary costs, what should be registered as an investment and what is acceptable as a cost during an accounting year. Some countries allow extraordinarily short periods for depreciating or amortizing environmental investments for income tax purposes. There are also legal clauses, for example in Canada and Sweden, that force companies to accumulate provisions during the lives of assets for clean-up costs that will come at the end of the lives of those assets.

23. In the 1993 United Nations survey it was also reported that about one-third of the companies claim that they have environmental accounting of some sort, "...however, no examples of concrete methodologies were submitted." (United Nations, 1993, pages 75 and 171)

24. At the same time a more optimistic outlook about the issue is emerging. A recent survey by TRG Revision, a Swedish subsidiary of the accounting firm of Deloitte Touche Tohmatsu International, reported a considerably growing interest in environmental reporting among the companies listed on the Stockholm Stock Exchange, although no connections with overall company performance measures was discussed. In 1991 McKinsey & Co., an international consultancy firm, reported that out of 400 companies 92% perceived the environment to be one of the big challenges of the next century. (United Nations, 1993)

25. Current developments in the "Total Quality Management" field may point to new possibilities (Bergström and Gummesson 1994; Welford and Gouldson 1993). The Environmental Management and Audit Scheme (EMAS) recently promulgated by the European Commission is one such possibility. As the scheme is recent, it's practical implications are speculative: EMAS should raise environmental awareness in many companies as a first step. The programme is designed to be compatible with practices in the dominating industrial enterprises in the European Union. This means that it may counteract ambitions and functions in enterprises that are environmentally more radical.

26. When high environmental standards are a customer claim, the issues more easily become a part of "normal business". Public bodies such as government agencies, municipal administration, schools, etc. may serve as quality conscious forerunners on the demand side of the market. Standards set on office equipment, building materials, copy paper, etc. will soon expand to other demand sectors. The evidence from Sweden is strong on this point.

27. The research in recent years by the Stockholm House of Sustainable Economy and the environmental research group at Stockholm University School of Business has shown that site consciousness is one of the crucial conditions for a company to become seriously "green". Consequently radical practices in reforming economic concepts, accounting and reporting, etc., are first developed by municipalities, local housing companies and similar organizations with no alternative to staying with "their" environment. This study uses parallels to that research for discussing possible future developments in transnational corporations.

IV. CASE STUDIES

28. For the purpose of this report, six case studies were undertaken to provide a basis for forming conclusions as to the feasibility of linking environmental performance indicators with the financial and other information normally supplied by enterprises. The case studies were selected to represent different kinds of environmental problems encountered by enterprises and, of course, do not cover all possible cases. However, it is felt that these cases provide good potential for being able to formulate recommend ways to integrate business and environmental performance reporting.

29. All the cases follow the same pattern:

(a) A short general background is provided on the company and its position in the company Group. All of the case studies describe a Swedish unit as part of a transnational Group. Two are international Group headquarters (Volvo and Astra), and four are subsidiaries in a Group (Sunwing, WMI Sellbergs, McDonald's and Stora) of which two of the latter four have a Swedish parent company (Sunwing and Stora). In combination with some notes on company history this background provides the overall conditions for performance reporting by the company.

(b) Some information is given on company policies, strategies, operational targets etc., which provided relevant performance criteria for analysis purposes.

(c) There is a brief presentation on the industry which is necessary to understand the kinds of environmental issues that are appropriate to be raised. The cases are substantially different in this respect:

(i) WMI Sellbergs' environmental concern is central to the business idea of the company. Re-use and recycling is what is offered to their customers.

(ii) Sunwing Hotels manage hotel establishments around the world. The hotel industry has generally demonstrated awareness of the importance of good environmental management.

(iii) Svenska McDonald's is the Swedish branch of world's most well-known fast foods chain. The Group has made a well-recognized upgrading of it's environmental profile in many countries.

(iv) AB Volvo as a car manufacturer displays most of the typical features of the old industries. The company is known to employ environmental considerations in product design. Within the automobile industry, environmental arguments have become increasingly important in marketing products.

(v) STORA Skog is one of the largest forestry companies in Sweden within which a serious environmental debate is going on.

(vi) Astra is a very competitive company in medical drugs. The pharmaceutical industry operates under extreme testing, documentation and safety conditions. Companies are generally law-driven and conservative.

(d) The resource relations of which the company is a part are documented. The specific environmental issues which may be raised relate to the circulation of resources. Thus, the case studies report on the resources base, throughput of resources, and kinds of resources transformations that are made by the company in accordance with the scheme outlined in figure 1 above.

(e) Specific reporting practices in each company are reported as well as comments from management on the need for information and expectations for changes in the future.

30. Using the brief model format as introduced in figure 1, the six cases can be outlined as in figure 2 (in 6 parts, 2.1 to 2.6) below. The specific structure of the six companies as economizing and circulating systems is described. Values in the right hand side of the figures are listed in alphabetical order.

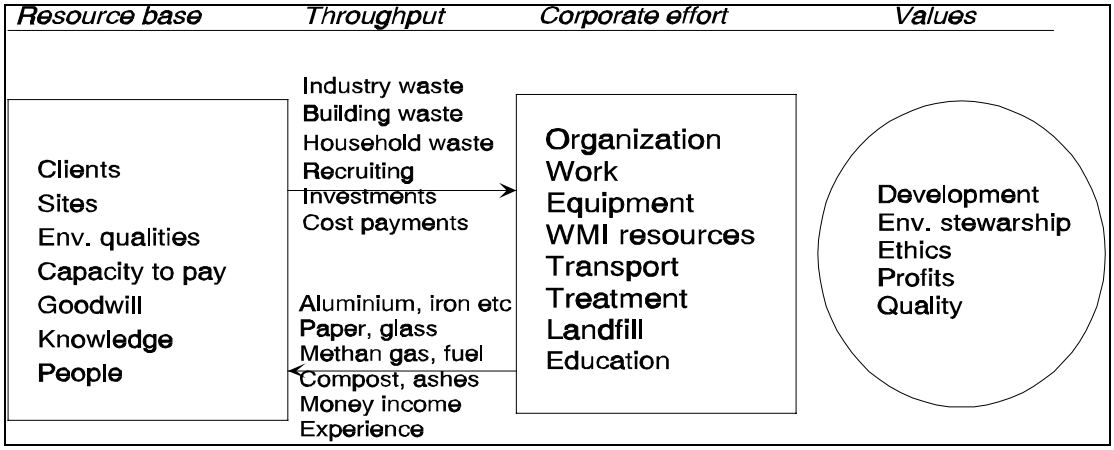

Figure 2.1. WMI Sellbergs. The model has few details, thus giving a brief picture of the circulation of resources of which the company is a part.

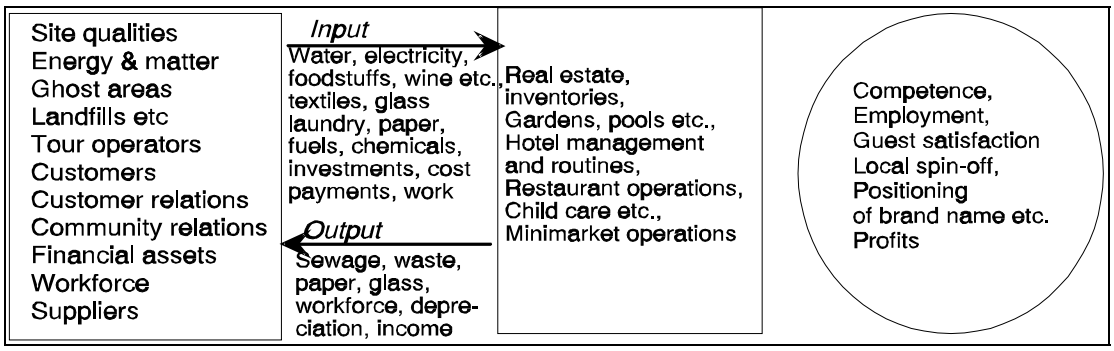

Figure2.2. Sunwing Hotels. This model gives a much more detailed idea of what is done out of what in the hotel ventures.

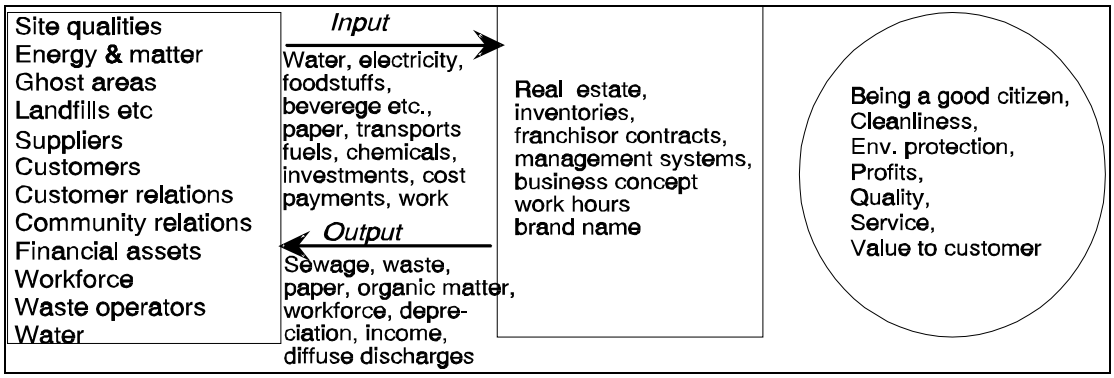

Figure 2.3. Svenska McDonald's. The degree of detail is similar to that of figure 2.2. The value markers, to the right in the figure, are a composite of general group policies and opinions of the Swedish management.

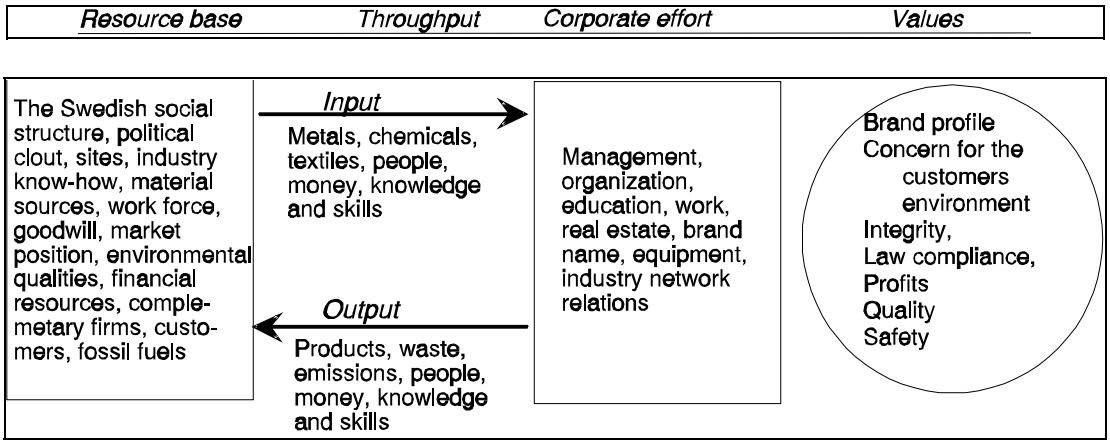

Figure 2.4. AB Volvo. Here the general dynamics of the company is mapped in a relatively abstract way, while the resource base is indicated in some more detail.

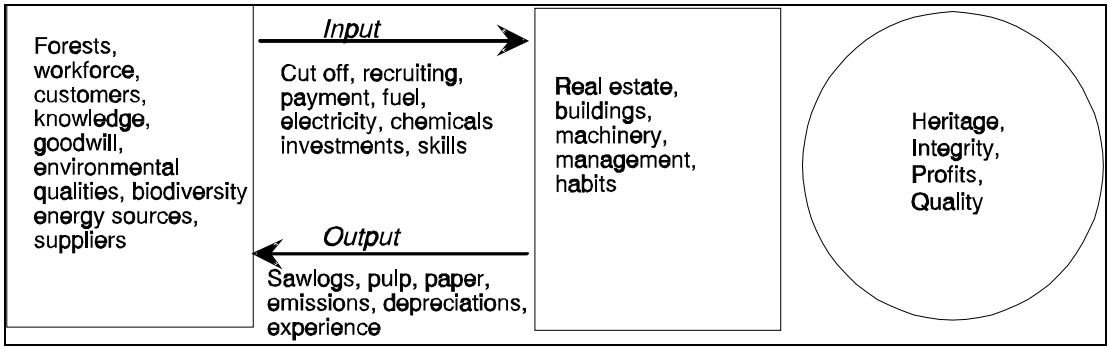

Figure 2.5. STORA Skog. This model, in its content and structure, is close to the general model structure as given in figure 1, above.

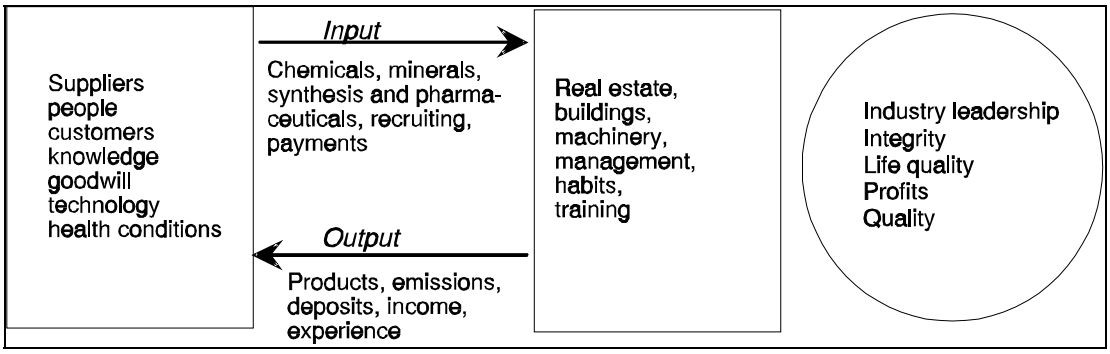

Figure 2.6. ASTRA. See comments to figure 2.5.

V. REPORT DISCLOSURES FOUND IN THE CASE STUDIES

31. This section is a brief overview of current reporting practices in the case study companies. The text is not intended as an assessment of the existing practices. It should rather be read as a factual record. It is not, however, a standardized record for each of the corporations studied but rather it

illustrates where good information is available.

32. As indicated above, if these companies are integrated into transnational groups, they are exposed to the financial markets and generally have greater flexibility with regard to operations sites, and consequently are not expected to develop innovative practices regarding environmental reporting. Table 1 below summarizes the environmental reporting information that was identified in the six case studies. Additional descriptions of the information are included in the documentation of the individual case studies.

Table 1: A brief overview of reporting practices in the case studies

Question	*Response*
Are environmental issues a general management responsibility (distributed down the line)?	Yes, the issues are always acknowledged as such. With varying degrees of explicitness, Group management expects subsidiary units to take proper initiatives for the environment. Reporting and quality assurance are, however, handled by specialized units of staff.
Are environmental issues reported to the Chief Executive Officer and the Board on a regular basis?	Not always on a regular basis and not always identified as environmentally relevant. A fair answer is "most often".
Are there any safeguards against incorrect internal thinking about environmental conditions?	It does happen, but it does not seem to be the normal case. External auditors, external dissemination of information and certification schemes are in use or at least intensively discussed.
Are environmental conditions disclosed in information that is provided to the general public?	Only at a low level of information quality: policies and cost estimations occur alongside physical variables. But there is no environmental performance reporting.
Are environmental conditions integrated into general performance reporting?	No, but within some of the companies there is currently a discussion going on over the issue.

A. The environment and general management

33. At Waste Management International Sellbergs AB (abbreviated as WMIS in this report) all line managers and certain designated individuals have full responsibility for environmental as well as other matters within limits set by the line organization. The line managers also operate a computerized environmental compliance assurance system. A special national staff unit is responsible for interpreting government regulations and relevant scientific knowledge. Educational programmes are developed by the personnel department.

34. At ASTRA, key figures concerning data on significant environmental impacts are reported on a regular basis at each unit. These figures monitor the levels stated in government concessions and regulations as well as in internal goals set up at each specific unit. The frequency of reporting depends on the level of importance of the data from an environmental impact point of view, as well as the ability of the data to be measured in an accurate manner. At one site five to

six different figures are being monitored on a daily basis with regards to both usage and discharge of heavy metals, solvents and chlorine.

35. Within the McDonald's Group, all performance reporting follows a worldwide standard. Reports cover traditional financial statements such as the profit or loss from operations, gross profit and return on investment, and some other performance indicators such as the number of guests, sales per guest, cost of food as a percentage of total costs, etc. This information is supplemented with figures on deliveries of bread-buns, french fries, etc. A goal of 90 per cent waste reduction is measured once every year by an inventory procedure. No external environmental auditor is engaged.

36. Regarding the qualitative goals which restaurants in the world aspire, there is no reporting from Sweden to McDonald's Corporation by traditional means. In the future, however, a number of key ratios will be developed and reported in order to demonstrate compliance with the company's environmental goals. This year, a key ratio regarding the usage of polyethylene plastic will be put in use. The ratio will make it possible to understand and direct the flows of recycled materials. Concerning distribution, besides actual costs, kilometres per ton distributed (outgoing transportation) is used as a key ratio.

37. Each Sunwing hotel has a number of standard financial and operational ratios that are used as guidelines. Such ratios are: the number of occupied beds and rooms, average number of employees, and total revenues per guest-night. Every week each hotel reports their liquidity (cash balance) and results of operations before taxes to the head office in Stockholm. On a monthly basis a profit or loss statement, a balance sheet, a statement of cash flows and the above-mentioned financial and operational ratios are also reported. All reports are entered on forms and sent to Stockholm by mail or by facsimile. Sunwing hotels further report to Group headquarters with the same frequency and the same content. No information goes the opposite way, i.e. from Group headquarters (Airtours) to the head office of Sunwing hotels and back to the individual hotels. However, feed-back is given when divergence from planned budgets occurs.

38. It is customary in the hotel business to record a ratio of the quantity of water and electricity consumed (with the number of guests as the denominator) and this has been done for many years in order to keep costs at a low level. This is, however, not regarded as environmental reporting and it is not reported to the Stockholm head office.

39. Volvo has developed a life-cycle analysis (LCA) system called EPS (Environmental Priority Strategies in product design). EPS helps the Volvo companies to examine the environmental impact of materials and products. Volvo also has an environmental data base, MOTIV, which contains information on more than 5,000 chemical products. A central group in Volvo, called Yrkeshygien (Work environment hygiene), supports the system and evaluates new chemicals. The data base can, for example, be used to find all products that contain a certain chemical. This can be of help in an emergency situation.

40. Volvo's current environmental policy pledges:

(a) to develop and market products with superior environmental properties and which meet the highest efficiency requirements;
(b) to use manufacturing processes that have the least possible impact on the environment;
(c) to actively participate in and conduct research and development activities in the environmental field;
(d) to select environmentally compatible and recyclable material in connection with the development and manufacturing of their products, and when they purchase components from their suppliers;
(e) to apply a total view regarding the adverse impact of products on the environment; and

(f) to strive to attain a uniform, worldwide environmental standard for processes and products.

41. Every company manager is responsible for implementing actions consistent with the above policies. The policy in itself is, however, a centralized product. Volvo's Environmental Council has the final responsibility for the policies. The Council is comprised of specialists from the Group's head office and from the various operating units, and the organization is responsible for the ongoing coordination of activities. In a new version of the policies, suppliers doing business with Volvo must also comply with the above environmental requirements.

B. Environmental audits and internal environmental reports

42. In WMIS the national environmental audit unit is separate from the line units. The audit unit reports directly to WMIS Group headquarters. Special measures safeguard the integrity of the unit from all of the other operating units. The National Environmental Audit Unit maintains a compliance verification system, a database covering all contracts, rules, and claims, etc., which may affect what is the proper thing to do in specific situations. The audit unit assess managerial and auditing procedures used by the units and sets internationally valid standards.

43. The environmental auditing at ASTRA is primarily conducted by the company's own personnel visiting the different units. However at ASTRA's units in Södertälje, auditing is done by an external auditor. Internal environmental reports are presented to the Board of Directors whenever any changes in production takes place -- otherwise the Board receives no formal environmental reports on a regular basis other than the corporation's annual reports.

44. The environmental auditors at Volvo are in-house specialists supervised by the Group's environmental auditor. Auditors need to have access to all accounting and other records with nothing hidden, which is the main reason why external consultants are not used. Still, the auditors always come from units outside of the unit being reviewed. Only on rare occasions have the auditors been from outside Volvo, and this happens solely when special legal knowledge is needed.

45. The audit focuses on different levels of environmental issues:

(a) Compliance with current national legislation;
(b) Compliance with probable future legislation; and
(c) How the Volvo environmental policy objectives have been translated into action plans and concrete measures in the company.

46. The environmental auditors do not perform an annual audit. They rely on a surprise audit to get a maximum reading on policy compliance. The audit is more of an evaluation than a traditional audit in the financial sense. The environmental audit does not give any answers as to how the company should improve its environmental programme: the auditors only point out where poor environmental performance was found. It is the appropriate company manager's responsibility to take suitable measures.

C. Disclosure of environmental information, external certification and other matters

47. A discussion of external certification and environmental auditing is on the agenda at STORA Skog. The Chief Executive Officer has stressed the importance of enjoying public confidence in how forest industries are managed in general, and especially from an environmental point of view. Today STORA Skog has no external environmental auditing. Third party certification is not so much about just attesting to the final product as it is to get a neutral third party's view of the complete operating cycle, from the trees in the forest to the final output.

48. An environmental audit report was included in the 1993 ASTRA annual report.

Starting in 1994 it will be presented as a separate annual report.

49. WMX Technologies Group, the parent company of WMIS, publishes an annual environmental report. It covers all subsidiaries and is a well-written record which shows important changes in capacities, procedures and conditions of environmental relevance. Very little is said about actual performance except in the regulations compliance part, where the following statement appears:

(a) Percentage of areas audited where no significant compliance issues were found;
(b) Percentage of issues resolved according to schedule;
(c) Percentage of penalties which were from self-reported incidents; and,
(d) A compliance index which relates federal penalties to gross revenues.

50. An independent consultant, Arthur D. Little Inc., performs an external audit which covers policies and procedures, organization, training programmes, regulatory and management reporting systems, performance incentives and disciplinary action programmes, regulatory surveillance systems, audit programmes and corrective action systems, and other environmental management programmes and systems in place throughout the company and its subsidiaries.

D. Integration of environmental and financial performance measures

51. There is no reference to traditional business performance measures in the annual environmental report of WMIS (WMX Technologies). Environmental concern is treated as an important corporate item although separate from general business considerations. The management at WMIS emphasizes that integration of financial and environmental measures will be needed in the management processes, but they lack a valid way to construct such measures.

52. At ASTRA key figures of environmental significance are not related to financial factors -- i.e. there is no integrated environmental and financial reporting. The management does not foresee any such immediate integration even though they have access to a sophisticated data base.

53. The question of how to integrate financial and environmental reporting is differently stated at STORA Skog. This integration is a difficult and urgent question for a forestry company. The value of the forest stock is one of the important figures in the general financial report. This stock has a book value but the real value is to be found in the ecological conditions in the forests themselves. In the near future there will be an increasing need for standardized, reliable and confident methods for integrating environmental information with established financial information.

54. McDonald's is, at least for the Swedish operations, approaching a "cyclical society policy". This implies that all operations should be made in accordance with the following four basic principles:

(a) Minimal usage of underground mineral deposits (including fossil fuels);
(b) Artificial compounds should not be used;
(c) The physical conditions of the eco-system must be preserved; and
(d) The energy usage (metabolism) of society must be reduced equitably.

55. There is obviously some way to go before these requirements are fulfilled. Svenska McDonald's in the future will probably include three kinds of capital in their performance reports, which they preliminarily call "financial, natural and human capital", in order to keep track of the direction which they have decided to follow.

VI. THE POTENTIAL FOR INTEGRATING BUSINESS AND ENVIRONMENTAL PERFORMANCE INFORMATION

A. Potential for developing environmental reports in monetary terms

56. As indicated earlier in the report there are various ways to integrate notions of environmental performance into general business performance concepts. Several studies focusing on general industry statistics and similar topics employ add-on strategies where traditional financial accounting is given. However, no practical managerial applications of such a methodology were found in the literature when conducting the research for this report. It might seem that there are limited prospects for developing environmental reports for managerial use in monetary terms. Still, the approach is in high esteem in academic and political institutions.

B. Potential for developing holistic performance indexes

57. Another alternative is Life Cycle Analysis. This technique maps all environmental relationships of a product or a process when all of its components are traced back to their natural beginnings, called the "cradle", and all applications are traced forward to their ultimate dispositions, called their "graves". It is an engineering approach in which the aim is to minimize harmful environmental outcomes. The user of LCA has to face delicate valuational decisions since various effects must be combined. How, for example, do you evaluate shorter transport distances against greater sewage volumes?

58. A radical development of the technique has been done for the Swedish car industry, called the EPS system (Ryding and Steen 1991). This is described in the case for Volvo. By means of standard procedures, an "environmental index" can be computed for every part in a construction (or production) process. The indexes of all the parts are then multiplied to produce a compound index for the whole process. To standardize the results, all health outcomes are related to a single individual and all ecological outcomes are related to a single square kilometer.

59. The EPS approach is rough and it has been criticized for its superficial way of handling value questions. Its merit is that it produces a specific number, which can work as a benchmark for further and more specific investigations of environmental outcomes. Probably a lot of environmental improvements never come about because there is no specific place on where to start. If such an abstract index as EPS measures should be built into managerial control systems, the opposite effect is likely to occur. Managers will not have ways to go beyond the numbers -- only experts can tell what questions to ask. The importance of performance indicators can be concrete and intelligible to those using them. According to Johnson & Kaplan (1987) this is exactly the reason behind the current dominance of financial indicators in corporate decision making.

60. Index methods are sparse outside engineering practices. One exception may be rating models as those used by, for example, Standard & Poor’s and Moody’s. Standard & Poor’s describe their model in this way:

> "Typically, analyses are based on five years of historical results and projected data ranging from two to three years. Projections are important for discussing the firm’s planning process, future direction, and management philosophy. They are not intended to be used to judge management’s forecasting ability.
>
> Ratings compare risks among debt issuers, with relative ranking taking place on several levels. Issuers in the same industry are compared on both a domestic and international basis. S&P’s analytical approach is designed to produce a cross-border yardstick of comparison.
>
> Specific weights are not assigned to any of the rating criteria. The

rating finally assigned is a synthesis of qualitative and quantitative factors discussed within a committee on a case-by-case basis.

S&P's analytical framework for corporate issuers is comprised of two key components. The first is oriented towards business or competitive analysis; the second is related to financial analysis. ..." (Standard & Poor's, 1992)

61. In the presentation of their rating criteria Standard & Poor's underlines that the rating process is not limited to an examination of various financial measures. On the contrary, a proper assessment of debt protection levels requires a broader perspective involving business fundamentals. They do not explicitly point to environmental conditions as being part of those business fundamentals, although nothing is said about keeping such considerations out.

62. It is likely that the environmental conditions for a corporation are growing in importance when conducting a rating. The very concealed nature of the process where only the outcome, the rating, is disclosed leads to speculation. Rating companies claiming they make explicit environmentally- based judgments have appeared on the market recently. This may force a more general recognition of environmental concern as being an integral part of business management.

C. Potential for refining the structure of performance information

63. Among the reported case studies, this strategy is discussed at least within two of the case study companies, Svenska McDonald's and STORA Skog. In the future, Svenska McDonald's will probably include "financial, natural and human capital" in their performance reports. To do that in a practical way they will have to adopt an economic model of the company where the capital concept is open for this kind of extended use. The basic scheme used in the case studies illustrates exactly that: since the company is circulating all kinds of resources (financial, natural/material, and human/social) and acts as an economizing unit, it seems to be a good thing not to confuse the various kinds of resources with each other.

64. The experiences from research and practical developments in Swedish municipalities underline the same thing: a site-conscious (and/or quality-conscious) management system is dependant upon economic concepts where all kinds of resources and all kinds of qualities are rigorously treated. Basically, being "economical" is to consider how means are used to meet ends. Therefore, management should consider how to use scarce resources for attaining explicit goals, which implies claims for effectiveness, claims for thrift, and claims for good margins and low risk financially as well as for outside aspects of ventures.

65. In Sweden a new kind of accounting system has been developed and tested that intends to be directly derived from sustainable development visions and strategies. Performance measurement is tied to the concepts presented above: effectiveness, thrift and margin. The approach is called SDR (sustainable development records). Various general conditions restricting the approach are presented elsewhere (Daly 1977, Bergström 1992, 1993, 1995). The general SDR model structure, which is the one used in the case studies for this report (see figure 1), is mapped into an accounting scheme where the stock data end up in a balance sheet and change-process data in a profit-and-loss account.

66. From an environmental point of view the SDR approach differs from most other approaches in not establishing separate environmental accounts. The idea is to develop measures for general strategic performance assessment in a way which facilitates concern about the environment. The problem addressed with SDR is not the problem of giving the environment due attention but to stop treating the environment as something peculiar, where "normal" ways of being rational do not apply.

67. SDR is thus an accounting approach to sustainable development. It is

currently being tried out in several Swedish municipalities, state agencies and companies. The basis of SDR theory is that every operation is defined by its ecological conditions and these conditions are as intelligible as a business firm. From a business firm you expect financial results, cost controls and accountability. SDR is thus focused on how to organize information on essential results from enterprise efforts. Technically the method is built upon a rigorous implementation of double entry accounting in real terms, i.e. the entries do not have to be made in monetary measures.

68. SDR theory is built on a combination of three sets of logic with roots in the fields of ecology, economy and accounting.

(a) The ecological logic or the scheme of accounts and other descriptive concepts are built on the physical transformation process of the business;

(b) The economical logic whereby:

(i) Explicit value criteria are added to the circulation model. This is the foundation for tracking revenue concepts.

(ii) The essence of economic analysis is a non-violence principle, meaning that one should never use more effort than needed to reach a specific target.

(c) The accounting logic whereby:

(i) Double entry accounting means that every transaction is done both at the source and at the destination. In that way detailed records are kept of the throughput generated by the business.

(ii) Balance sheets (there is one for every kind of measure used) and income statements show a clear distinction between asset levels and positional measures on the one hand and throughput and change measures on the other.

(iii) When the books are closed debits and credits must equal, which makes it possible to audit the system systematically. Because of this one would be willing to handle very complex information which otherwise would break the system down.

69. The SDR approach is focused on managerial accounting and control systems. Experience so far shows some benefits with the system: first, the system development process has worked as a vehicle for making strategic thinking more explicit; second, the combination of real measures and explicit performance criteria gives room for quantitative following up where only personal subjective judgment was articulated before. Important qualities (technical qualities, environmental qualities, customer qualities, etc.) are handled in the same way, and with the same rigor as financial data. Third, sub-parts of a business as well as development over time are made comparable. Fourth, when discussing sustainable development the SDR approach can measure "small steps in the right direction" even if those steps are taken at a very low level. Results measures in the SDR system are mostly of a key indicator type, as illustrated in table 2 above. All key indicators are designed to give a higher number for a better state of the system.

Table 2: Possible key indicators of the SDR type. The examples refer to the case studies and correspond to the models in figure 2, above. It should be noted that these key indicators are presented here for illustrative reasons only. They are not sanctioned by the management of the enterprises in the case studies

	Effectiveness = A value indicator/a corporate effort indicator	**Thrift** = A corporate effort indicator/a throughput indicator	**Margin** = A throughput indicator/a resource base indicator [1]
(WMI Sellbergs)	Profits/WMI Resources employed	Salable matter/ total throughput of matter	Liquid assets/cost turnaround
(Sunwing hotels)	Customer satisfaction /real estate value	Number of guests/laundry	Local workforce/employees
(Svenska McDonald's)	Profits/capital employed	Capital/transport volume	Recycled waste/material input
(Volvo)	Brand position/cars sold	Cars produced/emissions from factories	Critical emission/current emission
(STORA Skog)	Market share in highest price segment	Sales/transport volumes	Organic growth/cutoff
(ASTRA)	Market share for the main product line	Sales/marketing effort	Patents/distributed profits

VII. CONCLUSIONS

A. Differences between industries

70. Some of the arguments around the general conditions for an enterprise to develop practical environmental awareness are summarized in table 3 below, where the "state of advantage" column summarizes those conditions which would make advanced and ambitious approaches to the integration of business and environmental performance measures likely.

Table 3. Conditions for an enterprise to develop a practical environmental awareness

Type of condition	*State of advantage*	*State of disadvantage*
Site dependency	Clear and understood	Confused or unknown
Exposure to financial markets	Low	High
Formal integrity	High	Low
Abstract vs. material operations	Material	Abstract
Customer claims	Quality conscious	Diffuse, price conscious

71. From these classifications it can be concluded that the cases chosen for this report exist in a middle ground between the advantage and the disadvantage states for developing new practices around financial and environmental reporting.

B. Importance of market and legislative contexts

72. Environmental costs to enterprises are a function of time to adapt. Tough political measures in combination with early warnings before the needed changes actually occur seem to be a successful political strategy for influencing companies with mainly reactive and passive ways to handle environmental and developmental issues.

73. It appears that transnational corporations typically need firm legislation before they will develop sustainable practices. This is partly because enterprise managements feel that the internalization of environmental costs in their costs of production will reduce the profitability of their products and make them uncompetitive in the market place and will have an adverse impact on the profitability of the enterprises. At the same time TNCs can usually avoid strong legislation because of their international flexibility in locating production facilities. However, this flexibility should not be over emphasized since investments are made somewhere in the world and economic considerations such as transporation costs and costs or relocation could significantly affect the profitability of operations.

74. State agencies and local municipalities should not under estimate their power as buying agents. Where a unified policy concerning environmental standards is possible, these bodies constitute a considerable market for many industries. An illustrative case was the development of low-chlorine/chlorine-free paper in Sweden.

75. It has been found that companies with an ambition to have a more sustainable development become increasingly involved with non-governmental organizations (NGOs). STORA Skog has good forestry management and social reasons to make their production more adapted to ecological sustainability. Partly, this can only be accomplished at a cost which their markets will accept only if environmental NGOs push both their competitors and their customers in the same direction. The legitimacy of NGOs as agents capable of raising "necessary" claims is thus an important asset for companies with advanced environmental concepts.

76. EMAS and similar initiatives will work both as a stimulus and as an impediment to a sustainable development. On the one hand such programmes initiate action where environmental initiatives otherwise probably would be delayed. On the other hand it is expected that conservative business practices and the slowness of change will be consolidated and institutionalized.

C. What may and may not be accomplished in the future

77. The point about EMAS mentioned above illustrates a general condition worth further mention. Some methods and practices may be successful in introducing the environment on to the business agenda but at the same time the actions taken may be obstacles for going beyond a first step. It takes confidence to initiate an action programme. Those trying to take a first step in raising environmental concern may find a given action most valuable, while the same action may be criticized by others as being an impediment to going further. The context within which environmental and financial performance is integrated differ considerably.

78. Items which need to be dealt with in the future may include the following:

(a) Cost/benefit analysis, full cost accounting and similar methods aimed at representing environmental relations in monetary terms rest on methodological assumptions which are still evolving;

(b) Environmental reports which are not related either to enterprise policies or performance open up the field and give some discretion to employees with interest in the issues. These iniatives, whenever appropriate, should be integrated with management responsibilities to capitalize on and encourage employee participation;

(c) Heavy dependence on experts in decision-making bodies for interpreting

the information given is a consequence of abstract figures and long chains of derivation. Greater efforts are required to ensure that the information is presented to decision-makers in a user-friendly manner;

(d) Governmental bodies, international regulation and other policies provide many options for action. Table 4 describes the lines of public action which would support activities of enterprises whose management styles have different characteristics and goals;

(e) When sustainable development and environmental considerations become the central concern of management it is possible that values which earlier were taken as given may need to be reassessed; and,

(f) On the one hand some enterprises may introduce the kind of "revolutionary" processes which will follow their acknowledgment of broad environmental issues. Alternatively, other enterprises may be tempted to use inexpensive investigations, a low profile and a compliance strategy while others make the investments. The most suitable approach has yet to be defined.

79. Among the progressive routes, the following are emphasized:

(a) Authorities and the research community can help enterprises that exhibit motivation on their own to develop new ways to integrate various kinds of performance information. Standards for external disclosure will be successful if they build upon principles and techniques which have worked well in internal management systems;

(b) Generally, it seems that structural approaches, especially the broadening of basic economic concepts, are more open-ended and thus innovative than the alternatives. Such strategies should not, however, be expected to be quickly adopted in transnational corporations generally. Those with well-recognized site and resource problems to handle are expected to set the pace;

(c) Generally, government policies would benefit from a more flexible attitude to management realities in TNCs. Table 4 above summarizes observations and conclusions made in this report showing a wide assortment of possible public actions that would support the integration of environmental considerations into corporate performance concepts, whether performance measures are publicly disclosed or not. The general format of the scheme, as well as many of the specific points in the table, are taken from the Benchmark Corporate Environmental Survey. (United Nations, 1993, p.168).

Table 4. The relationship of types of enterprise managements to their operating activities and to governmental actions which support those activities

Management type	Enterprise activities	Supporting governmental activities
I. Compliance-oriented management *(The reactive enterprise)*	End-of pipe solutions Abatement procedures Compliance reports Environmental experts in staff unit Emergency response	Command and control, realistic regulation Dialogue with industry organizations, conferences etc. Inform on regulations, early attention Tough enforcement
II. Preventive management *(The lean and precautionary enterprise)*	Internal audits Pollution prevention Waste minimization Public information Green accounting Line management responsibility for environmental issues.	Increased liabilities Waste treatment requirements, restrictive landfills policies, etc. Community right-to-know claims Energy conservation programmes, demand side management Green tax schemes
III. Strategic environmental management *(The concept seeking enterprise)*	Public dialogue, environmental product positioning External audits and use of environmental certification programmes Disclosure of quantitative throughput information; extensive LCA programmes Integration of environment, health and safety into technical design, "green" R&D	Stable regulatory build-up Green labeling programmes Support of consumer and green investor initiatives Strategic buying projects within public bodies Build-up of local and regional bodies for focusing joint industrial - public throughput issues
IV. Sustainable development management *(The responsive enterprise)*	Acknowledging of the enterprise's role in international wealth distribution Acknowledging of the enterprise's role in throughput of matter and energy Policies for ethical sales, climate change, throughput thrift etc. Use of best practice in all operations internationally. Sustainable development fully integrated into enterprise performance reporting. International auditing.	International information dissemination International harmonization of environmental regulation, standards and taxation. Health, safety and sustainable development is prioritized before traditional free trade values in international negotiations.

References

Andrews, P.W.S., 1949, Manufacturing Business. London: MacMillan.
Bateson, G., 1972, Steps to an Ecology of Mind. New York: Ballantine Books.
Bergström, S., 1992, "Ecology, Economy and Value Theory." In Human Responsibility and Global Change, ed. by L.O. Hansson and B. Jungen. Heidelberg: Springer.
Bergström, S., 1993, "Value Standards in Sub-Sustainable Development. On Limits to Ecological Economics." Ecological Economics 7:1 pp. 1-18.
Bergström, S., 1995, Sustainable Management. On Discretion between Endowment and Quality. New York: Island Press (forthcoming).
Björsell, M., 1993, Environmental Expenditures in the Swedish Manufacturing Industries. Stockholm: Statistics Sweden/Env. Statistics Programme. August 1993.
Buzzel, R.D., and B.T. Gale, 1987, The PIMS Principles - Linking Strategy to Performance. New York: The Free Press.
Chandler Jr., A.D., 1977, The Visible Hand, Cambridge, Mass.: Harvard University Press.
Common, M., 1988, "Poverty and Progress Revisited". In Economics, Growth and Sustainable Environments. David Collard et al (eds.), London: Macmillan, pp. 15-39.
Cook, E., 1976, Man, Energy, Society, San Francisco: Freeman.
Cyert, R., and J. March, 1963, A Behavioral Theory of the Firm. Englewood Cliffs, N.J.: McGraw-Hill.
Daly, H., 1977, Steady State Economics, San Francisco: Freeman.
Douglas, M., 1986, How Institutions Think. Syracuse, N.Y.: Syracuse University Press.
Drucker, P.F., 1993, Post-Capitalist Society, New York: Harper Business.
Earl, P., 1983, The Economic Imagination, New York: Sharpe.
Eisner, R., 1988, "Extended Accounts for National Income and Product", Journal of Economic Literature, Vol. XXVI (Dec. 1988) pp. 1611-1684.
Harris, M., 1977, Cannibals and Kings: The Origins of Culture, New York: Random House.
Johnson, H.T., and R.S. Kaplan, 1987, Relevance Lost: The Rise and Fall of Managerial Accounting. Cambridge, Mass.: Harvard University Press.
Lovelock, J.E., 1982, Gaia, a New Look at Life on Earth, New York and Toronto: Oxford University Press.
Miller, J.G., 1978, Living Systems, New York: McGraw-Hill.
Myrdal, G., 1975, Against the Stream, New York: Vintage Books.
Nordhaus, W., and Tobin, 1973, "Is Growth Obsolete?", in The Measurement of Economic and Social Performance, ed. by M. Moss. New York: National Bureau of Economic Research.
Prigogine, I., and I. Stengers, 1984, Order Out of Chaos: Man's New Dialogue with Nature, New York: Bantam Books.
Ryding, S-O., and B. Steen, 1991, EPS-systemet, IVL, Göteborg, B 1022.
Standard & Poor´s, 1992, International Criteria. New York (June).
United Nations, 1990, Information Disclosure Relating to Environmental Measures, New York: United Nations.
United Nations, 1991, Accounting for Environmental Protection Measures, New York: United Nations.
United Nations, 1992, Environmental Disclosures: International Survey of Corporate Reporting Practices, New York: United Nations.
United Nations, 1993, Environmental Management in Transnational Corporations. Report on the Benchmark Corporate Environmental Survey. New York: United Nations.
United Nations, 1993, Case Study in Accounting for Sustainable Forestry Management, New York: United Nations.
Vester, F., 1988, Leitmotiv vernetztes Denken. Für einen besseren Umgang mit der Welt , Munich: Wilhelm Heyne Verlag.
Welford, R., and A. Gouldson, 1993, Environmental Management and Business Strategy, London: Pitman Publishing.
Young, M.D., 1992, Sustainable Investment and Resource Use, The Parthenon Publishing Group, London: UNESCO: Man and the Biosphere series, vol.9.

Zolotas, X., 1981, Economic Growth and Declining Social Welfare, Athens: Bank of Greece.

[1] Technically, the format of margin measures varies, depending on different structures in resource bases.