Paper to be presented to Academy of Management Conference, USA, 2-4 May, 1995

REPLAYING RIO FOR A NEW PLANETARY CULTURE: ASSOCIATIVE, JOYFUL AND WISE

MERRELYN EMERY
Australian National University
Centre for Continuing Education
Canberra. 0200
Australia
61 6 249 2892

Abstract

Failure of the 1992 UNCED (Earth Summit) at Rio was inevitable because it was based on the maladaptive first organizational design principle. I outline the theory and methods of ecological adaptation and propose an alternative "Rio", one based on communities within ecosystems. It will bring people together around their local desirable futures to produce new (but also ancient) cultural ways leading to a wise or more adaptive ecological culture at the planetary level.

REPLAYING RIO FOR A NEW PLANETARY CULTURE:

ASSOCIATIVE, JOYFUL AND WISE

In 1992 the UNCED conference in Rio (hereforth called 'Rio1') was billed as the Earth Summit, a major intervnetion into 'business as usual' to procure agreement for better care for the planet, the Great Mother (Neumann, 1955 or Gaia (Lovelock, 1979). Analyzing Rio1 shows, however, that it was itself ‘business as usual’ in that it was designed for a social environment which no longer exists. Rio1 by definition could not meet its objectives.

In 1991, Maurice Strong, Secretary General of the UNCED said achieving the objectives of the conference would present an "immense challenge" to amongst other things, institutional innovation. "It will require the active engagement and participation of people at all levels of society-citizen groups, educators, voluntary and public interest organizations of all kinds (Reported in Miller, 1991, p1203). There is agreement that UNCED made a start but there is a long way to go.

Rio1 may have been "the most expensive adult-education exercise ever undertaken". Many NGOs regarded their networking and educational activities as more important than their lobbying (Haas, Levy & Parson, 1992, p30 with quote from Valentine, 1992). Although few claim that a network of citizen's group could ever supplant borad areas of governmental activity, many acknowledge that where there is a governmental vacuum concerning sustainability, NGOs can develop alternative strategies (Haas et al, 1992, p31).

This paper goes much further than that and outlines a process for global action by people, a participative one centred in Adult/Continuing Education (ACE) and using principles, concepts and methods tested over 30 years. It will meet Strong's challenge and comprehensively engage every sector and level of our diverse global community in an innovative planetary network or 'institution'. It embodies Jeffersonian democracy or the 'republican tradition' flowing from "education into citizenshi p, the heart of which was to enable people to see (and then act upon) the common good" (Kemmis, 1990: 11) and the ultimate common good *is* the planet.

This proposal also flows from Principle 10 of the *Rio Declaration*: access to information and citizen participation. It differs in that citizens will be active generators of information and action rather than passive recipients of information. It answers the question "What can be done to establish practices which would teach people to act and speak in a truly public way in public?" (Kemmis, 1990: 78). Like *Agenda 21* generated through Rio1, it will cover the entire environment and development agenda and be legally non binding. Unlike its predecessor, its products will not be primarily documents (Runnalls, 1992) but action by diffusing learning/planning communities committed to a desirable future for their local area and the planet. Because it is action based education which develops wisdom as well as the capacity to plan and execute ecological change, it fulfills the aims of chapters 36 and 37 of *Agenda 21*. It answers the call for citizen

mobilization to pressure governments included in the NGO's *'Alternative Economic Issues Cluster'* treaty.

Analysing in the light of new knowledge about adaptive cultural change shows that Rio1 was a microcosm of the world we are leaving behind. Its design and process embodied the elements contained within the world hypothesis of mechanism, that unified system of assumptions and beliefs which flows from the metaphor of the machine (Pepper, 1966). Mechanism springs from the assumption of a closed, static mechanical universe and consequently views people as goal seeking within closed systems, everything is and works like a machine.

The purpose of this paper, therefore, is to complement Rio1 and it begins where Rio1 left off, the point of commitment of the world's people to integrated action for environmentally sound development. And in order to achieve this, it is necessary to move to an entirely opposite conception and process of implementation than was encapsulated by Rio1. If the first Earth Summit was a new beginning (Strong, 1992 reported in Haas, Levy & Parson, 1992, p7) then Rio2 is yet another beginning.

The method used in this proposal is the two stage model (Emery M, 1999), a *Search Conference* (SC) for adaptation between system and environment followed by a *Participative Design Workshop* (PDW) to establish a structure for the system involved which is internally adaptive.

> Restoring our poor planet to health is not going to be accomplished without cultural change. Our future actions must simultaneously achieve diffusive cultural change as well as environmentally remediation and sustainability. ***despite our recent misadventures with the world hypothesis of mechanism, bureaucratic structures and the strong trends towards maladaption which they created, we have the methods to put these behind us. While the rate of change and relevant uncertainty in our social environment is currently out of control, we can tame it. We can restore at all levels, a more appropriate culture, one in harmony with its context. Its basic unit is 'people-in-environment' who proactively and creatively make adaptive change as a matter of course. The resulting culture is associative, joyful and wise. It is the expression of 'participative democracy'.***

ECOLOGICAL ADAPTATION

Ecological adaptation as conceptualized here is comprehensive. **Ecological** includes the whole environment, physical and social, whose definition is 'the extended social field of directive correlations' (Emery & Trist, 1965). **Adaptation** is a constant state of change appropriate to both the nature of people and a continuously changing living environment. Learning and dynamism are inherent to adaptation. The framework for the whole is given by open systems, systems which cannot escape being open to their environment (Emery F, 1959, 1993) and more specifically, that of directive correlation (Sommerhoff, 1950, 1981). The directive correlation is a simple model expressing the

relationship of actions relative to a starting point and a goal. It allows us to assess adaptation of system and environment and can be elaborated in many ways. Within this framework there are many integrated concepts which express *contextualism*, the only world hypothesis appropriate to constant change. It assumes there is a whole changing over time and that we kow it through a series of historic events within the changing context ofthe whole (Pepper, 1942). Therefore, both in theory and in practice, we can only sensibly explore and establish active adaptation within contextualism.

Table 1. Mechanism and Contextualism, People and Organization

	World Hypotheses	
	Mechanism	**Contextualism**
Systems	Closed/Static	Open/Dynamic
People	Goal seeking	Purposeful
	Objects	Potentially Ideal seeking
Learning	Inadequate for Meaning	Adequate, Direct perception
	Need Teaching	Encourage Ecological learning
Design Principles	(DP1) Redundancy of parts	(DP2) Redundancy of function
	People as redundant parts	People as valuable, resourceful peers
Produce:	Group assumptions which inhibit learning, communication	Creative Working Mode which increases learning, communication

As we see in Table 1, the structure of systems is determined by:

- **the organizational design principles**. (Emery F, 1967) The first design principle (DP1) is called 'redundancy of parts' because people are treated as redundant parts, cogs in the machine. Its other critical feature is that *responsibility for coordination and control* is located one level above where a particular activity is being performed. It produces the organizational structures called 'bureaucratic' or 'hierarchical' where the hierarchy is one of personal dominance. A DP1 structure is one in which everyone is licensed to be irresponsible. The second design principle (DP2) is called 'redundancy of functions' because as many functions and skills as possible are built into each person. *Responsibility for coordination and control* is located where activities are being performed. It produces organizational structures called 'democratic'. Democratic organizations, particularly large ones, may still contain a flat hierarchy but this is a hierarchy of functions where different levels negotiate as peers in order to accomplish the goals of the whole. Contrary to DP1 structures, DP2 structures motivate.

The design principles operate at all level and sectors of society. They determine the nature of political or governance systems in the same way as they govern the structure of single organizations. Committees are mini bureaucracies. Representative political systems derive from DP1. Alternatives flowing from DP2 have existed and currently exist. A ***participative democracy***, therefore, is a system structured entirely on DP2. That is, all subsystems (organizations, networks and communities) and their interrelationships are democratic as well as its overall system of governance. A participative democracy is a responsible system.

- **purposeful, potentially ideal seeking humans**. Human behaviour is viewed as purposeful (Ackoff & Emery, 1972) and adaptive as we pursue simultaneously autonomy, belongingness and learning. Human behaviour and environments are mutually determining. Organizations structured on either design principle affect our behaviour and, of course, the design of organizations is entirely under human control. DP2 organizations provide an environment (or econiche) within which we may rise above everyday purposes to seek ideals. This is a powerful form of behaviour with far reaching effects. .

- **the nature of environments as broad social fields**. The properties of the extended social field determine its causal texture, affecting the behaviour of all systems within it (Emery & Trist, 1965). This conceptualization provides both a conceptual and historical framework for cultural change and its fluctuating adaptivity.

- **Ecological learning** is based on our inbuilt adaptation to our world and our ability to immediately and directly extract meaning from it. This perceptually based learning applies to human behaviour as well as the physical environment. When placed in DP1 structures which inhibit their potential, people directly perceive this effect and make 'group assumptions' about what must be done to ameliorate the effects. These further paralyse communication and learning. In DP2 structures which maximize opportunities for development, people adopt the '**creative working mode'** (Bion, 1953, 1961), become cooperative and task oriented which promotes communication and learning towards shared purposes (Emery M, 1982, 1995).

Therefore, a participative democracy is a DP2 system which provides for its people's purposefulness and ideal seeking so that they want to learn how to increase the adaptivity of system and environment for mutual benefit. The ultimate goal is a planetary culture in continuous dynamic adaptation with a healthy environment at the largest, realistic system level, the planet. I call this culture **associative, joyful and wise** because those terms summarize the critical elements required for ecological adaptation.

Over and above these integrated frameworks are **world hypotheses** (Pepper, 1966) which are unified systems of assumptions flowing from root metaphors. They are quite simply hypotheses about how the world works. Two are particularly relevant here. The first is mechanism whose basic metaphor is the machine and which assumes that everything is and works like a machine. The second is contextualism whose basic working hypothesis is that there is a whole changing over time and that we know it through a series of historic events within the changing context of the whole. Table 1 shows that each bears a direct relation to the more detailed frameworks and adaptation.

Mechanism springs from the assumption of a closed, static mechanical universe and consequently views people as goal seeking within closed systems generally. It produces theories of learning which assume a fragmented sensory system and elevate the value of knowledge abstracted from its concrete base and unresponsive hierarchies of dominance. These inhibit motivation, learning and creativity. People within them are

unable to make the proactive, purposeful, creative, change required to affect the nature of their extended social field. Mechanism precludes active adaptation.

The integrated system of concepts subsumed under contextualism leads to the opposite conclusion. If all systems are open to their environment and if those within them are motivated to and can directly extract meaningful information from and learn about it, there is constant change and the possibility of purposefully designed change. When systems are structured on DP2, the learning and creativity of their members is enhanced, moving towards an adaptive and mutually beneficial relationship between system and environment. As contextualism is the only world hypothesis of constant change it is naturally the choice for making the future.

The extended social field over time

The properties of the environment defined as the extended social field of directive correlations determine its causal texture (Emery & Trist, 1965). This conceptualization provides an historical framework for cultural change and its fluctuating adaptivity (Emery M, 1982, 1995). Up until the industrial revolution there was a Type II, placid, clustered environment, the most long lasting and adaptive option yet tried by the human race. It was characterized by cooperation at all levels including between human cultures and the physical environment. While there were distinct 'cultures' during the long period of the Type II, they had more commonalities than differences. The commonalities involved the concept of people-in-environment. These cultures had and still have a clear appreciation of the role of humans as the caretakers or stewards of the planet because they knew that our gift of consciousness entailed great responsibilities. Because they were based on an epistemology which derived meaning from perception of concrete reality, their ecological theories were not only practical, easily translated into effective working plans but they also involved everybody. Children were particularly valued because they were the future and because they possess acute perceptual powers (Knudtson & Suzuki, 1992). Education in the Type II environment involved the education of perception. Theories were built on the perception of invariants (Gibson, 1966). Over time, the same correspondencies are observed in different places. This together with their reverence for the whole of life marked these cultures as wise in the sense in which I use it below.

The destruction of the Type II environment began with the Industrial Revolution, the birth of the world economy and large systems, dominant hierarchies or bureaucracies structured on the first design principle (DPl) called 'redundancy of parts' (Emery F, 1967) and competing for finite resources. The resulting Type III environment called 'disturbedreactive' embodied all of the elements contained within the world hypothesis of *mechanism*, that set of assumptions and beliefs which flows from the metaphor of the machine (Pepper, 1942, 1970) and the

assumption of a closed, static mechanical universe. It viewed people as goal seeking within closed systems. It also valued knowledge abstracted from its concrete base and, therefore, teaching, above that extracted by direct perception or 'ecological learning' (Heider, 1959; Gibson, 1966; Emery F, 1980, 1993). It, therefore, devalued the observations of most people and marked them as failures. They ceased to play a major role in the making of society or culture. But because values were stable because people were still docile, strategic planning assumed end points, was technically optimizing through problem solving using expert abstract knowledge and was played out at the top of hierarchies as a win/lose game (Emery F, 1977). Both DPl and teaching abstract knowledge inhibit motivation, learning and creativity, further suppressing our group life and capacity for ideal seeking and reducing our collective purposefulness and ability to work adaptively with our environment. Mechanism precludes active ecological adaptation (Emery M, 1982, 1995).

The Type III environment began to breakdown in the 1950s creating in its wake the Type IV 'turbulent' environment, containing systems left over from the Type III plus new more adaptive forms. It is characterized by value shifts and discontinuities and is intrinsically dynamic. Its dynamic properties arise not simply from the interactions of large systems but from a myriad of different actors and processes operating in the field itself. The competition in the Type III and its inhuman organizational form set off trains of unpredicted consequences including people rejecting fundamental assumptions about the shape of their societies. The critical distinguishing feature of the Type IV environment for those who live and attempt to plan within it is *relevant uncertainty.*

Today's world is marked by many rnaladaptions but dissociation is by far the most dominant. It is a passive maladaption involving withdrawal from responsibility and involvement in public life. It is a denial of 'community' and results in the breakdown of the coordination required to maintain social cohesion. Strong beliefs in autonomy, without the balance of the bonds of homonomy or belonging, fuel dissociation and resultin individual as well as cultural ill health. Because it is passive and without imperatives to associate, it is unlikely that our current state would result in ecological adaptation without deliberate interventions.

Yet active ecological adaptation is what our species needs if the Great Earth Mother is to remain reasonably tolerant of human life. Margulis and Lovelock (1989) argue convincingly that there is a biota controlled regulatory system, an organizing principle of the planet, Gaia, which maintains dynamic stability on its own behalf. We may not destroy *her* but for our own survival we must change our mechanistic assumptions, rejectattempted domination of the environment and regain our wisdom. We must rejoin the rest of the biota to

ensure that we regain an adaptive relationship with Gaia.

This is not going to be accomplished without cultural change. Our future actions must simultaneously achieve diffusive cultural change and environmental remediation with sustainability. Despite our recent misadventures with the world hypothesis of mechanism, bureaucratic structures and the strong trends towards dissociation which they created, we have the means to put these behind us. While the rate of change and relevant uncertainty in our social environment is currently out of control, we can tame it. We can restore at all levels, a more appropriate culture, one in harmony with its context. If interventions are to achieve this adaptation and amount to a new cultural way, they must be specifically designed and managed to encompass all the dimensions of contextualism. Figure 1 presents an intervention designed to produce ecological adaptation overtime from the Type IV environment.

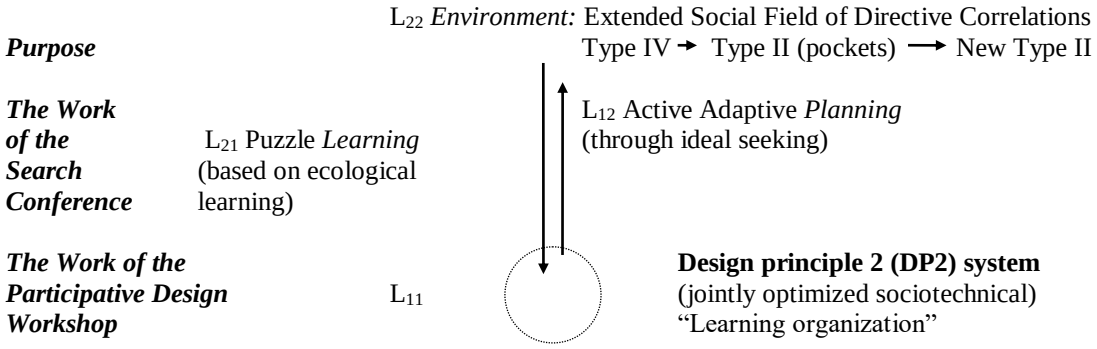


FIGURE 1: Ecological adaptation from the Type IV environment

That intervention presented in Figure 1 is the two stage model, a Search Conference followed by a Participative Design Workshop for design. A *system* is an organisation, community or network with a system principle. The system establishes adaptation with its environment by engaging in *puzzle learning* based on ecological learning and *active adaptive planning* based on the set of *ideals* (Emery F, 1977). The system itself must also be adaptive, ie. organised on the second design principle as a jointly optimised sociotechnical system which is a learning environment' (Emery M, 1993: 2).

As defined above, the second design principle (DP2) and the structures they produce enhance the learning and creativity of their members and motivate, unlike design principle 1 structures. A *participative democracy*, therefore, is a system structured entirely on DP2. That is, all subsystems (organizations, networks and communities) and their interrelationships are democratic as well as its overall system of governance.

The organizational design principles are extraordinarily powerful. Human behaviour and environments are mutually determining and organizations function as environments or econiches. DP2 organizations provide an econiche within which we may rise above everyday purposes to seek ideals (Ackoff & Emery, 1972). Because only individuals can be ideal seeking (Emery F, 1977) our basic unit for change needs to be 'people-in- environment' who proactively and creatively make adaptive change as a matter of course. Ideal seeking has far reaching effects as behaviours can be irrevocably changed through the processes of learning and perceptual reconstruction that take place in methods which elicit that mode. When ideal seeking takes place within and about an econiche, positive affect and energy are generated and the learning is intrinsically motivating. (Emery M, 1986). People are motivated to recreate such econiches for themselves and others. When the extended social field which includes the physical environment is part of the content, people are motivated to diffuse learning and action about that field.

Humans are centrally concerned with a search for meaning and adaptation and, therefore, the epistemology of ecological learning is appropriate for open systems. It is contextualist and based on our inbuilt adaptation to our world and our ability to immediately and directly extract meaning from it. Ideals contain and convey the ultimate meaning. Humans become conscious of ideals and mobilize them when they have to choose between everyday and self interested purposes. They will only do this, however, when the econiche allows it. Hence the importance of designing and managing such an econiche as the Search Conference which does precisely this. The set of ideals consists of homonomy (belongingness), nurturance, humanity and beauty. They to all extents and purposes seem human, cross cultural, and rarely fail to motivate to action. While perceptual learning works for the physical environment and in the process triggers the ideals, it also applies to human behaviour. We are excellent communicators who only need to be put in a conducive environment to show how good we are. In DPl structures, it is not in our interests to communicate accurately or in time. Hence the myth that any change effort requires extensive training in communication. But in DP2 structures which maximize opportunities for development, people adopt the 'creative working mode' (Bion, 1952, 1961), become cooperative and task oriented which promotes communication and learning towards shared purposes (Emery M, 1982, 1995). No training is required. Like everything else, quality of communication is the property of the ecosystem. In contrast, DPl structures inhibit individual potential, people directly perceive this effect and make 'group assumptions' about what must be done to ameliorate the effects. These further paralyse communication and learning. When the task of a DP2 structure includes environmental learning, there is a multiplier effect.

Obviously, if we are to create a new world, we must design it on the second design principle and we must incorporate all the conditions which most affect the ultimate outcome. We must include the conditions established by Asch (1952) for effective, influential communication. These are built into the practices of the Search Conference.

As systems become adaptive, they establish sanctuaries of a modem Type II, again placid and ordered according to Gaia. Knowledge and wisdom held by remnants of the old adaptive cultures is currently being rediscovered and revalued (Knudtson & Suzuki, 1992). Over time, as direct and indirect forms of diffusion occur and more systems become adaptive, these pockets cohere into larger, more encompassing systems. As systems and environments define and redefine each other over time, these pockets eventually become a new extended social field of every system.

The goal is a planetary participative democracy in continuous dynamic adaptation with a healthy biosphere. I call its culture and the extended social field it becomes *associative, joyful and wise* because those terms summarize the critical elements required for ecological adaptation. They are also the direct opposite of our current maladaptions. Because these ways are intrinsically attractive, embodying particularly the Ideal of Beauty, so the cultural transformation we seek can be seen as an intrinsically motivated move from the *hatred of learning* to the *joy of learning* (Emery M, 1982, 1986). Today's maladaptions are reversible but reversing them requires the generation of energy and positive affect to fuel the learning and action required. The creative working mode, energy, positive affect and learning are all highly correlated. Once the process is underway, success generates confidence and further energy, excitement and joy. The associative, joy and wise way will come about through diffusive spirals of positive affect.

Developing Wisdom

Being wise implies a specific concept of wisdom. There is nothing mysterious about it. Four forms of knowing derived from the parameters of decision making and the open system (Emery F, 1977) and their corresponding learning strategies have been identified. Learning strategies are the link to environments. Because cultural change and its diffusion in a Type IV environment involve all parameters of the open system, forms of knowing derived from less than the four parameters cannot encompass it. Of these four forms of knowing, only that called 'wisdom' is derived from the full set of parameters of the open system which translates into learning from experience of the human-environment system.

But this alone is insufficient. Humans have the capacity of consciousness which is defined as 'awareness of awareness' (Chein, 1972). Because humans are ultimately concerned with meaning, knowledge which is tacit or not brought to consciousness cannot fulfill the desire for meaning. Nor can it be either accurately recalled oracted upon. Consciousness is an adaptation in its own right (Emery M, 1999). Being able to perceive or be aware of the self behaving in context is an element of and adds to the totality. Without it and without other conscious knowledge, there can be no clear

articulation of meaning and, therefore, no guaranteed diffusion.The wisdom we seek must be as conscious and concretely understood as was the 'Wisdom of the elders' (Knudtson & Suzuki, 1992).

Wisdom is defined, therefore, as the conscious perception of the meaning which inheres in the whole system and provokes and guides action towards maintaining the order and stability of the total system. It covers terms such as the 'eternal unity of all things', the wholeness of reality. It is the knowing derived from direct perception of and participation in the whole open system (Emery M, 1999). This captures the substance of ancient wisdoms and leads directly to a pragmatic process for 'learning to act wisely', to make choices *for the whole.*

Learning to act wisely is accomplished through a simple process model (Emery M, 1982). Both experience andconscious conceptual knowledge of DP2 organization, environment and positive affect are required. The experience must be such as to lead to ideal seeking and the expansion of consciousness of this leads to the 'getting of wisdom'. This initiates a positive feedback loop which generates increased experience and consciousness of the wholeness of reality. This simple model is built into both events combining the Search Conference and Participative Design Workshop and even more comprehensively into the associated training course. Wisdom is, therefore, a term for the highest level of practical concrete knowledge and meaning and it can be brought into being by the methods and process described below.

We must regain our wisdom, our sense of responsibility for the whole, if we are to survive. But the new associative, joyful and wise culture should not be interpreted as ludditism. It isn't. The critical features of an ecologically adaptive culture or extended social field have little to do with technology. They have to do with our human life and behaviour as social, group animals and our relatedness to our ultimate context. They have to do with the choices we make about our technologies. The new world to which we aspire through a myriad of 'visions' is a modem Type II, capturing the essential features of the original adaptive culture with today's technology.

Methods For Ecological Adaptation And Wisdom

Deliberately practising cultural transformation involves designing and managing econiches within which learning to act wisely and its diffusion will reliably occur. There are three integrated methods proven to produce these econiches and the desirable results.

The Search Conference. The SC answers the question 'Where and what should we be in year x?' It is active adaptive strategic planning. It is designed and managed to include all of the concepts required for ecological adaptation between system and environment plus others such as the conditions for influential

communication (Asch, 1952; Emery M, 1982) and the rationalisation of conflict (Emery F, 1966; Emery M, 1993). It produces democratic learning planning *communities* which implement action plans embedded in the Strategy of the Indirect Approach (Sun Tzu; Emery M, 1982)) and are motivated to diffuse.

Translating the open system into practice plus the focus on action planning provides its characteristic external structure or design which is that of a funnel, starting broadly with learning about the extended social field and the possibilities inherent in it. In this first phase, participants collect data about changes in the field and analyse and synthesize into its most probable and desirable futures. The second phase focuses on the system with learning about it derived from a reliving of its history, an analysis of its present characteristics and synthesized into its most desirable form. Phase 3 integrates learning of environment and system through dealing with constraints, exploiting positive trends, adjusting the most desirable system and creating detailed action plans to bring this into being. The funnel thus symbolizes the narrowing in from possibilities to concrete probabilities and actions.

System, environment and their integration, therefore, provide the *content.* The *process* operationalizes the functions across the system-environment boundary, learning and planning simultaneously. It is a flexible but totally task oriented event in which participants begin work in the 'creative working mode' and maintain that mode. Over twenty years of experience with the Search Conference has proved that the maladaptive dynamics often associated with participative events are the result of DPl structure and forms of management which introduce elements of that design principle. Searching does not require literacy. It specifically develops confidence and facility with 'community' and oral culture, thereby restoring another dimension of association by spoken language, that called 'social cement' by Malinowski (quoted in Farb, 1973).

The SC also practices throughout the derivation of meaning from direct perception. It deliberately introduces the rule that 'all perceptions are valid'. Participants learn that their perceptions of environmental events are shared by others as is also the importance and value placed upon them. They bring to consciouness their previously tacit knowledge and use it to analyse and synthesize their conceptualizations of the environment. They learn how to understand the extended social field and the relationships between it and their system. They design in adaptive new relationships between their system and the environment and because it is their system and their future, they are taking responsibility for their own future. They destroy the myths that people do not want to take responsibility and are fearful of change. SC participants eagerly and enthusiastically embrace both change and responsibility and proceed to

implement their plans. Because of the energy, joy and excitement generated by the experience, they are motivated to spread it to others and involve them in the implementation of their plans.

The Participative Design Workshop. The PDW was developed to provide conscious knowledge of organizational structures and the design principles underlying them, to effectively design and redesign those structures (Emery F & M., 1974, 1993). It presents the design principles, their dynamics and consequences. Participants either analyse and redesign their organizational structure or design a structure where none has previously existed, on DP2. History shows that the Search Conference is insufficient on its own to maintain the adaptation in the long term. A recent development has been the systematic linking of these two methods to avoid failures of SC implementation (Emery M, forthcoming). When it follows the Search Conference, the PDW answers the question 'How do we effectively organize ourselves to implement our plans?' The methods serve the purpose of participative democracy in complementary ways. The PDW replaces all previously existing methods for designing and redesigning structures such as STS.

Training for Participative Democratic Methods. A workshop design has been perfected over the years for comprehensive and integrated learning of the theory and practice of these two methods. It involves conceptual briefings and debriefings, experiences of the methods as participants and practices with the methods as designers and managers. Participants practise with real life examples from a wide variety of settings, gaining both experience and the conscious knowledge of the critical dimensions required for successful ecological adaptation. These training workshops result in the same motivated diffusive behaviours as the methods themselves (Emery M, 1995).

ANALYSIS OF RIOl

The structure and functions of RioI, like those of the UN (Kildow, 1992), was almost entirely based on DPI. The Preparatory Committee (PrepCom) and the Secretariat were both bureaucratic structures with responsibility for outcome vested in the chairs. Officers for the various committees were elected and/or appointed and the PrepCom also elected 39 vice-chairmen into the bureau. This "unwieldy size" resulted from the necessity for geographic *representation.* PrepCom also established ultimately three working groups with strict procedures such as no more than two meetings concurrently and no night work which severely constrained the available time (Antrim & Chasek, 1992: 81). Reports were prepared by an interagency *committee* structure (DP1) which quite predictably proved time consuming. The working groups conducted their business according to DP1. 'Formal' sessions consisting of statements and

comments were followed by 'informal' sessions for more interactive discussion which made it essentially a 'mixed mode', an alternation of the design principles (Emery M, 1982). But these discussions guided the chairmen in preparing documents so that the chairs rather than the members took responsibility for the outcomes. The identification of problems such as the negotiating process, adoption and support of partisan positions, the competition among negotiaters for limited diplomatic resources, and poor coordination between Secretariat and conference leadership (Antrim & Chasek, 1992) are those which spring directly from DP1 structure.

The substantial work of the conference took place in the PrepCom phase. Its outcomes were the documents containing decisions. The heads of states meeting was conceived by Strong as a *"ceremony* which would affirm their commitment to a secure and sustainable future for our planet" (Reported in Miller, 1991, my emphasis). Nor were these problems confined to the political arm. The NGOs also experienced organizational problems (Parson, Haas & Levy, 1992) and this is not surprising as most NGOs have also structured themselves on DPI. It was less a conference than a negotiation process (Speth, 1992) which implies that end points were assumed rather than collectively discovered and agreed. This optimizing strategic planning played at the top marked it as Type III.

Lack of commitment appears to be the major failure of Rio1, in its PrepCom, conference and implementation phases (Nitze, 1992). Some governments seemed unwilling or unable to generate creative alternatives to current solutions and funding and NGOs were basically on the outside looking in (Downes, 1992). Commitment to action planning and implementation was a critical weakness. "Even if the institutional follow-up (to Agenda 21) is effective, it is difficult to see how it can be transformed into a workable action plan" (Runnalls, 1992: 12). "Who will carry out its mandates and plans?" (Kildow, 1992: 1077). Agenda 21 (the action plan) "was the biggest disappointment of the summit" (Schnoor, 1992: 22), devoid of concrete initiatives (Miller, 1992). Yet Secretary General Strong stated that "the results of this conference will ultimately depend on the credibility and effectiveness of its follow-up...The momentum must be maintained" (Haas et al, 1992: 7). But the structure and process of Riol actively militated against commitment and, therefore, such momentum.

It is true that Rio 1 saw "the largest concentration ever of the best minds in the field" and equally true that these "specialists have never been required to think holistically, to examine the interrelations between disciples, or to observe cause and effect outside a very narrow range" (Valencia, 1992, p1081-2). Artificially fragmented human activities prohibit wholistic reconstruction and the international economic and legal systems exclude many from participating in decisions that affect them. Only radical change to

open decision making to those affected will redress the current divorce of human activities from their ecological context. Democracy has little force in the UNCED type of international forum, in fact the UN itself arose from these 'pathologies' enshrined in sovereign states and nonintervention in domestic jurisdiction (Downes, 1992, p20-1). Downes identifies the critical features of DP1 operating in the legal international context. Because Rio1 used the structures and problem solving based learning of theType III environment, it had neither the benefits of DP2 nor ecological learning, and certainly no multiplier effects.

Substantive outcomes agreed for example in the Climate Convention such the reduction of carbon dioxide emissions to 1990 levels by 2000 are in doubt. "It is now becoming clear that many industrialised countries are having considerable trouble in reducing emissions" (Lloyd, 1992). The Australian Environment Minister stated in October that we will fail in this. With these key failures at the national political level, it is obvious that legislation, government regulation and pressure are inadequate to achieve the changes that result from a myriad of activities. Only widespread commitment from the variety of CO_2 sources themselves is going to do it. And that commitment will not be generated through methods appropriate for the Type III environment.

THE STRUCTURE AND PROCESS OF AN ACTIVE ADAPTIVE RIO2

Because "the interaction of people and their environment rarely observes boundaries of disciplines, nations, or laws" Valencia, 1992: 1082), Rio2 uses appropriate boundaries, those defined by the ecological environment itself, natural ecosystems with their human inhabitants. It rises above nationalism and shortsightedness as Rio1needed to do (Glaze, 1992) but couldn't. Rio2 will be designed on the basis of communities within ecosystems determined by watersheds. Watersheds are systems incorporating all biological and geochemical life supports, the best basis of ecosystem definition. "We must learn to change our social structures and laws to be compatible with watershed laws" (Curry, 1976, 1981: 337). Watersheds function as macro units which integrate terrestrial, acquatic and ocean systems. Coverage of global diversity can be achieved by models based on major watersheds (Moore et al, 1989). Communities and ecosystems avoid most artificial political boundaries and the DPl structures within them. Ecosystem also shares a common root with economy, *oikos* or 'household'. "These two households may have more in common than we generally realize-a commonality which we may have to recognize in order actually practice a politics of willing a common world. The first step is to recognize that there is...potentially, a kind oforganic household consisting of both natural and humanly appropriated elements, within which inhabitation is a genuine possibility". Inhabitation is broader and deeper than 'environmentalism' as there is an intimate relationship between place and culture. Places by developing practices, create culture (Kemmis, 1990: 120, 81).

A Six Stage Process.

The process is bottom up, starting with training, moving to local community events, from there to ecosystems and then to the planetary level. The design incorporates the Strategy of the Indirect Approach (Sun Tzu) such that if a few local events fail, there will still be a critical and diffusing mass of action on the ground.

1.Management and Trainer Recruitment. An international group of 'barefoot social scientists' (BSSl), those experienced in the theories and methods for ecological adaptation (Emery M, 1982, 1995) will design and manage the process until it is well under way. At that point they will be joined by a similarly small group of new barefoot social scientists created by the process. Together they will coordinate the remaining steps. The first task, however, is to identify the appropriate people to be trained using a strict set of crite ria. These include a proven maturity and ability to work with people, a desire to learn the theory and practice of adaptation, literacy desirably as they will have to study theoretical material, and relevant bi-or multi-lingualism. Basic materials will need to be translated. As ecosystems cover huge distances, recruits should be drawn from across the area so that they can operate locally to all extents. Local ecologically oriented NGOs could provide a starting point for this process.

2.**Training Workshops for New Barefoot Social Scientists**. The workshops will be run by BSSls as above, say N=30. There are people already available to conduct these workshops but some translators will be required.

There are 36 ecosystems defined by major watershed and modified to take into account population density and need to cover the globe (Appendix A). There are also approximately 200 major language groups (Personal Communication-Department of Immigration, Canberra), some spoken across different continents and others such as Mandarin spoken by a huge number of people (Appendix B). With about 20 people in each workshop, there will need to be 69 workshops. With 2 BSSls for each workshop running 1 per fortnight, this phase should take approximately 10 weeks. It will result in 1380 new Barefoot Social Scientists (BSS2s).

The design of the workshop will be that already in use with an additional four days for study, extra practice with the methods and planning within the ecosystem, ten days in all. The plan of action including subsystem groups as per Gildea et al's (1986) analysis of the Mississippi watershed, and subcity boundaries will be decided in the workshop. Geophysical maps will be available

to supplement local knowledge. To all extents possible, workshops of adjacent ecosystems will be held concurrently in the same venue to aid larger group cohesion. Other contact points will be provided.

3. **Series of Local Events (SCs + PDWs**). Going out in pairs, the BSS2s will systematically run SCs plus PDWs in communities according to the plan of action determined above. In cities these will be neighbourhoods, in the outback they will be regional or subecosystem. This will reverse Riol's use of representatives and negotiations resulting in the lowest common denominator, substituting ideals or the highest common denominator, and DP2 structures within which all members are responsible for outcomes and understanding of the design principles. Citizens will be directly and profoundly engaged in planning and implementing a desirable future for their common unity (community), developing a sense of responsibility for each other as well as it, in the process. The 'politics of place' are powerful and it makes sense to start with the common ground, literally and figuratively. Similarly, they will sense and celebrate the vitality of human cooperation and the diversity of aspirations, regaining their faith in their ability to govern themselves. Citizens will learn what is required for participation in face-to-face self government and cooperation by practising with experiences of a very specific kind (Kemmis, 1990: 15, 31, 41, 73).

The design of these local events will be variants of the simple classical SC external structure. Each will determine a Most Probable and Desirable Future for the World, a desirable future for their local bounded system (Desirable Econiche) and action plans for local implementation together with an organizational structure for this implementation. Each pair will have 18 months to do as much as possible. These pairs operating full time and tapping into local networks can mobilize huge energy reserves. The BSSls will act as advisers and trouble shooters if required.

4. **Consolidation of Local Events in to·Major Ecosystems.** This phase will begin after these eighteen months. Two people from each local event will be chosen by criteria and then lot to meet in Ecosystem groups. They will integrate their Desirable Futures for the World, discuss their Desirable Econiches and progress towards them, and then determine a desirable future for the Ecosystem. They will make action plans for this Desirable Ecosystem (N=36 + Arctic and Antarctic). These people will then return to implement action plans at the Ecosystem level. These Ecosystem events will be managed by a selection of that ecosystem's BSS2s.

5. Planetary Future and Action Plans. Two years after the project began, 20 people who fit the criteria of bi- or multi-lingualism and active concern for the project, and then chosen by lot from each ecosystem will meet in Rio (N=720).

Each contingent will split in half. The first half (N=360) will meet in continent and associated ocean groups to integrate their Desirable Futures for the World. This will be a three stage process. It will culminate in an integrated Desirable Future for the World. Details can be found in Appendix B. The second half will meet in relevant language groups to make action plans to deal with constraints already commonly encountered in Ecosystem groups. It also will be a staged process.

The Desirable Future of the World and consolidated reports from the problem action planning groups will then be presented at a Rio2 plenary session. Rio2 will then break into groups, to prepare action plans for strategic goals at the global level. After an interim plenary, these plans will be finalized and presented at a final plenarysession. The plenary will also decide on next steps, modes of communication, other support mechanisms, when Rio2 will reconvene to monitor and discuss progress and adjust action plans where necessary, etc. Implementation of planetary action plans will begin immediately after participants return home. It should notbe forgotten that while this is happening, action on the ground in local communities, subecosystems and ecosystems is continuing.

6. Monitoring and Adaptation. Approximately 18 months after Rio2, there should be a reconvention of keyplayers as detennined by active groups within ecosystems. This will be the first of many as the process dependson continuous monitoring of the field and active adaptation to changes in the planetary field.

Logistics

The major concern would of course be money. Riol was not cheap and clearly not value for money. If national governments were serious, they could again demonstrate their commitment by funding whatever people and activities are required in their territories. However, this must be string free money. The process must avoid being captured or coopted by the DPl systems responsible for much of the problem in the first place. And certainly, suspicions that they were not in control of their destinies would destroy the process and herald a return to dissociation. Shortfalls of money could be made up by the UN Sustainable Development Commission or other appropriate UN agency. Or the barefoot social science group and concerned others can attempt to raise money through philanthropic business networks and foundations. The Business Council and planet Earth Council of NGOs should act as resources in this matter. Other logistical matters are encompassed by the design and mangement of the process itself and will be accomplished by a combination of the coordinating group and local resources.

Achievements of Rio2.

Riol achieved rhetorical acceptance of planetary interdependence, the intimate relations of biological, physical and social realms, (Haas et al, 1992: 9) including social justice, poverty, and politics (Schnoor, 1992: 18), a whole living biosphere. *Rio2* builds upon that with a comprehensive action base. The strategic goals are encompassed by the Desirable Future of the World- all dimensions. Rio2 will provide the "key to the solution" of current problems with "a one-world approach, public awareness of the issues and a recognition of the interconnections among environmental factors" (Celso do Amaral e Silva, 1992: 1080). People all over the world will see the unitary global system for themselves and act on local issues of interdependence. It takes *Rio*l's awareness of planetary awareness of interdependence as stated in Principle 2 of the declaration (Schnoor, 1992) into diffusive action at all ecosystemic levels.

If *Rio* l's greatest contribution was giving a new direction to institutional development from the bottom up (Nitze, 1992), then *Rio2* will confrrm this in practice. The new global network will feature decision making by locals in group structures. Representative governments will play their part through the implementation of action plans. It will, therefore, play a role in "'democratizing' international law and society" (Downes, 1992: 22). It will also by its very process shift with time to match or maintain its adaptation with its external environment, that which the UN and its derivatives have not achieved. Similarly, it will have an ethos genuinely encompassing the planet. It will make the required 'wise' decisions (Glaze, 1992) bcause it will be mobilizing ideals and concrete knowledge extracted directly from the immediate ecosystems. It will have created the new international organization needed to take action on problems that transcend current boundaries (Kildow, 1992). Rather than yet another international bureaucracy such as the Sustainable Development Commission charged with implementation of the objectives of the 'institutions' chapter of Agenda 21, we have people chosen by their peers using open processes to implement their own purposeful democratic organizations. If there is any doubt that people will not be able to force change on their existing DPl governments, many prior to Riol observed that public support for pro-environmental policies pushed reticent countries into supporting the effort (Antrim & Chasek, 1992: 80). With a planetary wide base of action and support, representative governments will be pushed even further to accommodate the wishes of their people.

Rio2 will prove that the objectives of large international conferences do not have to be limited and that action can replace "grandstanding pledges to toothless protocols" (Miller, 1992: 57). Similarly, it will show that negotiations do not have to be aligned with the resources available (Antrim & Chasek,

1992; Schnoor, 1992) but that human energy and creativity is a more than sufficient substitute for money and that good action plans generate resources rather than using them up. One of *Rio*l's successes was the better coordination ofNGOs and the establishment of the the Planet Earth Council. This could serve to build national concern or capacity and broadly publicize information on progress (Haas et al, 1992: 11). It could be used by *Rio2* from the beginning to do just that. Other information and training institutes created could also act as resources to Rio2. Riol's secretariat envisaged the national reports as a way to increase public participation in decision making and progress reports from *Rio2* issued by the coordinating group could serve the same function, augmenting and supporting the new wave of activity on the ground.

Eco-efficient Business

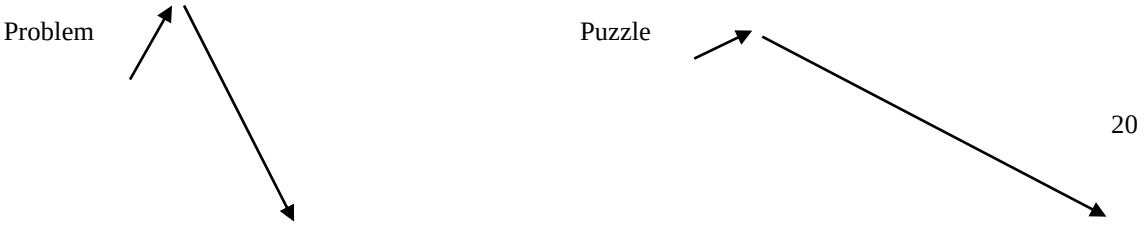
If it made good sense for industry to move towards practices for sustainable development (eco-efficient business) in partnership with governments and citizen groups before Rio2 (Schmidheiny, 1992) it would be almost inevitable after it. If businesses participating in local SCs do not implement action plans to become actively adaptive, they would fail entirely. They will have had the opportunity to redesign their operations and structure for the rapidly emerging new world. And they will have learnt about the 'embryos of social change' (Emery F, 1967) that "system of social intelligence" that Schmidheiny (1992) saw they required to complement their skills in market intelligence . But if they don't implement, they lose not only competitive advantage, they also become subject to the "mobilization of shame", that extremely powerful mechanism for change, even in international circles (Schnoor, 1992: 19).

Rio2 will not achieve total success in all areas quickly or easily. But it will build the grass root momentum that Riol lacked. Its success in the long term will far outrun that of Riol because it employs a responsible, motivating and, therefore, diffusing process.

CONCLUSION

The structure and process of Riol assumed that the Type III environment still existed. Figure 2 using the model of directive correlation shows that this approach was maladaptive, could achieve only an intensification of the Type IV environment rather than approximate ecological adaptation or a new Type II.

Rio1



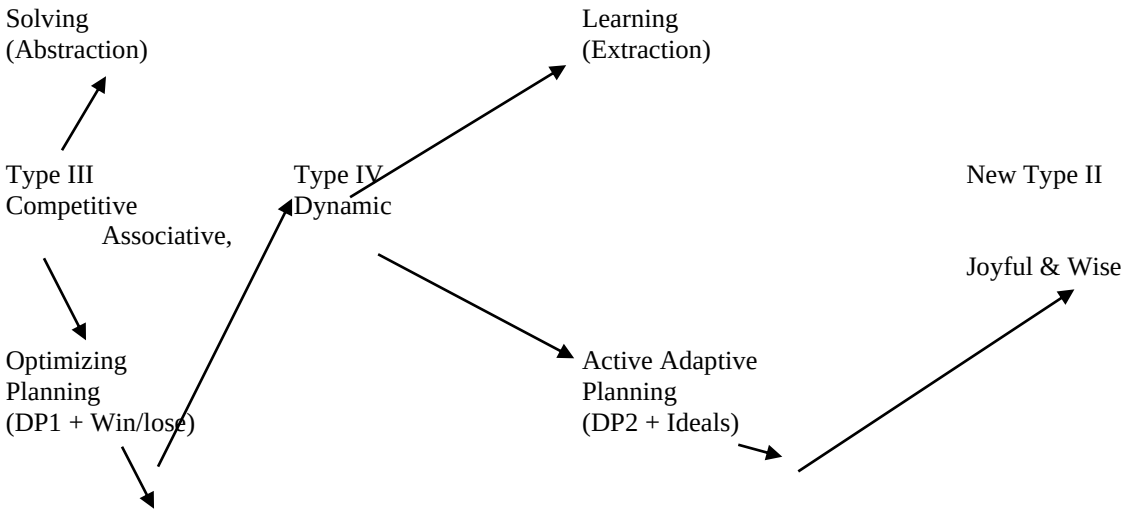


FIGURE 2
Comparison of Riol and Rio2
in terms of Adaptation

Riol used the methods of problem solving based on abstract knowledge and optimizing planning with DPl structures and inevitable win/lose outcomes. All of these approaches may have been appropriate for the Type III environment but are doomed to failure in a dynamic environment featuring discontinuities and maladaptions. Such forms of learning and planning cannot encompass all of the dimensions of the total open system, people-in-environment. Rio2 assumes a Type IV environment and uses methods appropriate to it. The new systems and behaviours flowing from it are the product of puzzle learning using knowledge and meaning directly extracted from the surrounding concrete realities and put to use through participative democratic structures and planning. The active adaptive planning of Rio2 derives its energy and motivation from ideal seeking and taking responsibility for the collective desirable future. It is adaptive in that its process continues in concert with the changing environment which is monitored so that both system and environment move together towards the desirable future. As small systems merge and integrate into larger systems, they initiate new moves towards and gradually cohere into the new associative, joyful and wise culture which will accumulate over time into the new Type II. There is sufficiently comprehensive theory to guide practice for cultural and planetary adaptation. The practice has already started. All we need to do is get on with it.

REFERENCES

Ackoff, R L. & F. E. Emery. 1972. On purposeful systems. Tavistock and Aldine Atherton.

Antrim L. N. & P. Chasek, 1992. The UNCED negotiating process. Ocean & Coastal Management 18: 79-99.
Asch, S. 1952. Social Psychology. Prentice-Hall.
Bion, W. R 1952. Group dynamics: A Review. International Journal of Psychoanalysis. 33: 235-247. Bion, W. R 1961. Experiences in groups. London. Tavistock.
Celso do Amaral e Silva, C. 1992. Environmental protection: A view from Brazil. **Environmental Science** & Technology. 26: 6: 1979-80
Curry, RR 1977. Watershed form and process: The elegant balance. In F. E. Emery (Ed) 1981. **Systemsthinking.** Vol. Two: 319-340. Penguin.
Downes, D. R 1992. Don't blame it on Rio. **The Environmental Forum.** May/June: 17-23.
Emery, F. E. 1959. Characteristics of socio-technical systems. In E. Trist & H. Murray (Eds) 1993. The social engagement of social science: A Tavistock anthology. Vol. II: The socio-technical perspective. Philadelphia: University of Pennsylvania Press.
Emery, F. E. (1967) The next thirty years: Concepts, methods and anticipations. Human Relations. 20: 199-237.
Emery, F. E. 1977. **Futures we are in.** Leiden. Martinus Nijhoff Social Science Division.
Emery F. E. 1980. Educational paradigms. In M. Emery (Ed) 1993. **Participative Desij,i for ParticipativeDemocracy.** Canberra. CCE. Australian National University.
Emery, F. E. & E. L. Trist. 1965. The causal texture of organizational environments. **Human Relations.** 18:21-32.
Emery, M. 1982 . **Seaching.** Canberra. Centre for Continuing Education, Australian National University.
Emery, **M.** 1986. Toward an heuristic theory of diffusion. **Human Relations.** 39: 5: 411-432
Emery, M. 1993. **Participative design for participative democracy.** Canberra. Centre for Continuing Education, Australian National University.
Emery, M. 1999. **Searching: The theory and practice of making cultural change.** John Benjamins Publishing Company, Amsterdam, Philadelphia.
Farb, P. 1973. **Word play: What happens when people talk.** Bantam Books.
Gibson, J. J. 1966. **The senses considered as perceptual systems.** Boston. Houghton Mifflin Co.
Gildea, M. P.; B. Moore; C. J. Vorosmarty. 1986. A Global Model of Nutrient Cycling: I. Introduction, modelstructure and terretrial mobilization of nutrients. In D. L. Correll (Ed) **Watershed research perspect ives.** 1-31. Smithsonian Institution Press. Washington. DC.
Glaze, K. H. 1992 . Earth Summit. **Environmental Science & Technology.** 26: 6: 1069.
Haas, P. M., M. A. Levy, & E. A. Parson. 1992. Appraising the Earth summit: How should we judge UNCED's success?. **Environment** 34: 8: 7-33

Heider, F. 1959. On perception and event structure and the psychological environment. **Psychological Issues.** 1: 3: 1-34.

Kemmis, D. 1990. **Community and the politics of place.** Nonnan and London. University of Oklahoma Press. Kildow, J. T. 1992. The Earth swnmit: We need more than a message. Environmental Science & Technology. 26: 6: 1977-8.

Knudtson P. & D. Suzuki. 1992. The wisdom of the elders. Toronto. Stoddart Publishing Co.

Lloyd, J. 1994. The Rio climate convention commitments hit the too-hard basket as reality dawns. ANU Reporter. 26 October: 4.

Lovelock, J.E. 1979. Gaia: A new look at life on Earth. Oxford. Oxford University Press.

Margulis, L., & J.E. Lovelock. 1989. Gaia and Geognosy. In M. B. Rambler, L. Margulis & R Fester (Eds) 1989. Global ecology: Towards a science of the biosphere. Boston. Academic Press, Inc.

Miller, M. 1992. Getting grounded at Rio. Ecodecision. June: 55-57.

Miller, S. 1991. 1992. Earth swnmit in Rio. Environmental Science & Technology. 25: 7: 1202-3

Moore, B., III, M. P. Gildea, C. .J. Vorosmarty, D. L. Skole, J. M. Melillo, B. J. Peterson, E. B. Rastetter, & P. A. Steudler. 1989. Biogeochemical Cycles. In M. B. Rambler, L. Margulis & R Fester (Eds) 1989. Global ecology: Towards a science of the biosphere. Boston. Academic Press, Inc.

Neumann, E. 1955. The great mother. London. Routledge & Kegan Paul.

Nitze, W. A. 1992. The road starts at Rio. The Environmental Forum. May/June: 10-16

Parson, E. A., P. M. Haas & M.A. Levy. 1992. A summary of the major documents signed at the Earth swnmit and the global forum. Environment. 34: 8: 13-15, 34-6.

Pepper, S. C. 1942, 1970. World Hypotheses. Berkley. University of California Press.

Runnalls, D. 1992. Success and failure from Rio. **Ecodecision.** September: 11-12 Schmidheiny, S. A business agenda for Rio. **The Environmental Forum.** May/June: 25-7.

Schnoor, J. 1992 . The Rio Earth summit: What does it mean? **Environmental Science & Technology.** 27: 1:18-22.

Sornmerhoff, G. 1950. The abstract characteristics of living systems. In F. E. Emery (Ed) 1981. **Svstemsthinking.** Penguin.

Speth, J. G. 1992. On the road to Rio and to sustainability. **Environmental Science & Technology.** 26: 6:1075-6.

Valencia, I. M. 1992. Lessons for UNCED '92: A consortium of universities look at the big picture. Environmental Science & Technology . 26: 6: 1081-2

Vorosrnarty, C. J; M. P. Gildea; B. Moore. A global model of nutrient cycling: IT. Aquatic processing, retention and distribution of nutrients in large drainage basins. In D. L. Correll (Ed) Watershed research perspectives. 32-56. Smithsonian Institution Press. Washington DC.

APPENDIX A

Global map with ecosystems and populations densities. (The Times Atlas of the World, 1990. London.

Dotted lines indicate ecosystem lines disregarded because of low populations density.

APPENDIX B

Ecosystem No.	No of Workshops	Languages
1.	1	English, Amerinds
2.	1	English, French, Algonquin & other indigenous languages
3.	3	English, French, Spanish, Basque
4.	3	European, Scandinavian and other indigenous lanuages
5.	2	European, Scandinavian, Slav and other indigenous
6.	2	Slav, Finnish,
7.	2	Slav, Finnish, Altaic, Turkish etc
8.	1	Slav, Finnish, Altaic,
9.	1	Finnish, Slav, other indigenous,
10.	1	Altaic, Turka-Tatar, & other indigenous languages
11.	2	Korean, Japanese, Mandarin, Ainu
12.	4	Mandarin, Korean, Japanese, other Sinitics
13.	4	Mandarin and other Sinitics
14.	3	Mandarin, Thai, other Austroasiatic & Sinitics
15.	1	Altaic, Irano-arrnenian, Indo-aryan
16.	2	Turkish, Arabic, Irano-arrnenian
17.	1	Arabic, Tuareg, Sudanese, French,
18.	2	Spanish, English, Amerinds
19.	2	English, French
20.	2	English
21.	1	English, Spanish
22.	1	Spanish, English, Amerinds
23.	1	Spanish, Amerinds
24.	3	Spanish, Portugese, local Amerinds
25.	1	Sudanese, Bantu, French, English
26.	1	Semitic, Hamitic groups
27.	2	Arabic, Sudanese, Hamitic, English
28.	2	Indo-aryan
29.	4	"
30	2	Indo-Arian (Hindi etc), Dravidian
31.	2	Thai, Vietnamese, Indonesian, other Austroasiatic
32	1	Melanesian, Papua/Aust/Pacific Pidgins, Polynesian, English,
33.	2	Sudanese, Bantu, French, English
34.	2	Bushman-Hottentot, English, Afrikans, Pidgins
35.	2	Spanish, Portugese, local Amerinds
36.	2	English, Afrikans, Bantu, Bushman, Austronesian
Total	69 workshops (1380 people)	

Adjacent ecosystem groups will share responsibility for the Arctic and Antarctic

Table 2. Planetary Future Group Stage 1

Groups	Ecosystems	N=
A	1, 2, 18-21,	5
B	22-4, 35	4
C	3-7,	5
D	8-12,	5
E	13-15, 31-32,	5
F	16, 28-30	4
G	17, 26-7,	3
H	25, 33-4, 36	4

Stage 2 will consist of ecosystems A-D, Stage 3 will consist of ecosystems E-H.