

Inverting the paradigm

CONSIDER. Yet another major new development is proposed that will, inevitably, disturb, damage and degrade existing landscape processes. But not to worry, we now have laws that protect the environment. Not only that, but whatever the development it must be sustainable. Since the proponent of this major new development is legally obliged to carry out an environmental impact assessment a swift, but ever so thorough, site survey is commissioned and executed. The competence and integrity of the consultants is unquestioned, yet they know that a single snapshot cannot show the seasonal cycles of complex interactions and key flows of materials, energy and information that sustain the natural systems. But hey, that is too much to ask when time is of the essence and time means money. Besides, we cannot predict, with absolute certainty, that the development will cause irretrievable damage, so let us just get on with it.

Of course with more and more development the cumulative impacts become critical. Now the focus begins to shift toward legal limits to resource use and to landscape restoration and reclamation. Recovery plans for threatened species make a debut. Public and private costs are huge. Matters of equity impede progress. Developer A was permitted to clear vegetation, graze livestock, cultivate, irrigate, dispose of toxic waste or whatever, so why not neighbour B? Obligations to manage land and water resources sustainably are completely overshadowed by issues of property rights. The results of all this are plain to see, if we but choose to look. Read *"Listen the Land is Crying"* by Mary White (1999) if you must have documentation and graphic illustration. Clearly, the prevailing incremental development paradigm has failed us.

Consider. Why not invert this prevailing paradigm? Begin with a whole of landscape, catchment or regional assessment that identifies the level of disturbance, damage and degradation that might just be sustainable, both in terms of economic production and conservation of component biodiversity. This ultimate development cap will be set by the potential cumulative impacts of serial development of single or mixed land uses. Where understanding of environmental processes and key ecological functions remains rudimentary then the precautionary principle must prevail. The development cap is not fixed for all time, but accelerated research and systematic monitoring provide the only means by which the precautionary

principle can be relaxed and the development cap modified.

Northern Australia provides an ideal testing ground for the inverted paradigm. Throughout much of this vast area the quickening hand of human industry rests relatively lightly on the landscape. This is not to say that existing land uses have not had damaging impacts. Invasive organisms, many deliberately introduced for potential economic benefit; overstocking with resilient *Bos indicus* cattle and overfishing of some targeted species are examples of threatening processes. But, over large areas the seasonal cycles roll on with their natural processes and key ecological functions essentially unimpeded.

Although relatively undeveloped we do know quite a lot about the land and water resource base and component biodiversity of Northern Australia. We have a whole raft of surveys and resource assessments of the gross extent of land and water resources potentially available for arable and pastoral development. More detailed assessments for specific uses also exist e.g., irrigated cotton, sugarcane, forest plantation species, cashews, mangoes and introduced pasture species. What we do not have for any specified catchment or hydro ecological unit is just how much development of what, where and when is compatible with maintenance of key environmental processes and ecological functions. The answers to these questions will depend on the level of understanding, technology and management skills that are currently available.

Northern Australia is at a critical point in the development path. It can follow the prevailing paradigm of incremental development, proposal by proposal, with the cumulative impacts that are so evident in "developed" Australia. Alternatively, we could adopt the inverted paradigm that assesses whole of landscape capacity to sustain damage, with any proposed development evaluated within that context. Social and economic factors will determine the level of damage — soil erosion, water pollution, biodiversity loss and so on that will be acceptable to resident and visiting people. But the potential outcome of particular choices will be made transparent. Existing data, information and knowledge can support the inverted paradigm, but we need the political will and wisdom to embrace and implement it.

Prof. Henry Nix