

Mining, environment and society: Contribution of the thought of Whitehead to the methodology of assessing the water that can really be mobilized in the Kimberley and Canning Basin, Australia.

Summary of the presentation

The presentation will begin with a short film to take the audience directly into the region. The film will showcase the human, cultural, social, environmental and economic capital. These assets must be balanced when considering development in the region. The film will be followed by the presentation of a paper by the author. In application of the AIATSIS Research Charter (2011, ref. 01), Anne Poelina and Ian Perdrisat will be available to take questions.

Background to the case study: the research network

The main lines of research and case study chosen.

The location and local context (Maps)

§ 1 - Drop of experience n°1: teaching from Walmadany / James Price Point

§ 2 - Drop of experience n°2: What can we learn from this teaching for the Canning Basin (area concerned, Native Title, national consultation)?

§ 3 - Drop of experience n°3: good practices, a methodology IWRM in Canning Basin -

Need to take into account the intercultural issues; Multiculturalism;

Review of the scientific assumptions of Western culture

The contribution of the drop of experience method in Integrated Resource Management (IWRM / IWRM)

§ 4 - Drop of experience n°4: The proposed action

Conclusion: A contribution to the national debate regarding planning law reform to promote co-existence and co-management of Australia's sovereign land, waters and food security

We must hold this land all together for all of us (Paddy Roe, Nyikina Elder and Senior Lawman)

The "drops of experience", also termed "actual entities" are "the final real things of which the world is made up" (PR 27). "Like the atoms of Democritus they are microcosmic entities, aggregate of which, termed societies or nexus, form the macrocosmic entities of our everyday experience –tree, houses, people. But whereas the atoms of Democritus are inert, imperishable, material stuff, Whitehead's actual entities are vital, transient "drops of experience, complex and interdependent" (PR 28)." Donald W. Sherburne (1965, ref. 02)

Background to the case study: the research network

The impact of resource extraction on the social, cultural and environmental landscapes of the world are of international interest. The geographical Laboratory "Loterr" from the University of Lorraine (Nancy 2) is specialized in the study of landscapes, including mining landscapes across the world. Michel Deshaies, its director published in 2007 *Mining areas, exploitation and conquest*, and in 2013 *Natural resources and settlement* (Ref. 03).

This research contributes to ongoing training of the author who is committed, to exploring water issues, at the local level (City of Charleville-Mezières, France) and at international level (NGO-UNESCO International Forum to be held in Africa on the issue of water in 2014).

In the laboratory Loterr on 13 December 2008, the thesis (PhD) *Territorial experience enlightened by A.N. Whitehead Thought: Convivial regions' potentiality and applications to the region "between the Vosges and Ardennes"* (Ref. 04) was obtained. The concept of "conviviality" refers to the work of Ivan Illich (Ref. 05). This thesis questions the assumptions of geography, urban planning and wider the modern science, from the "hard core of common sense", i.e. "what everyone assumes in practice, even if it denies verbally" (Griffin, Ref. 06). This leads to the organic philosophy, and its evolutionary scheme. The most complete expression of the organic scheme was given by AN Whitehead in 1925 (Harvard University).

Other authors who have contributed to the development of organic philosophy include CS Peirce, W. James, Bergson, Teilhard de Chardin, Hartshorne, and closer, N. Rescher, D.R. Griffin, J.M. Breuvert, H. Vaillant, M. Weber, JC Dumoncel (Ref. 07). A.N. Whitehead uses the most demanding scientific criteria: logic, coherence, adequacy, applicability and necessity (Ref. 08) the "drops of experience" that formed the world (see below, § 4). Despite being created 80 years ago, Whitehead's approach remains unsurpassed to this day. His approach is grounded on a trans-disciplinary and generalist approach to sustainable development and include an alternative economy that respects territory. Concerning water, we will show how it can effectively expand and deepen the methodology of IWRM proposed by UNESCO (ref. 09). This methodology allows the research process to be action oriented.

During a trip to Australia in the summer of 2011, the Nyikina people, through one of their leaders Anne Poelina expressed interest in the organic approach to understanding and managing local and regional geography. A dialogue was born, to put organic thought into action. (ref. 10)

The dialogue continued on 1 June 2013 in France with a presentation to the NGO-UNESCO Joint Commission on Human Rights on the situation of the Kimberley Region in regards to the proposed establishment of the world's largest gas hub at Walmadany-James Price Point (abrev. JPP), with a very strong pressure for intensive mining (more than 500 exploration licenses to date) Following which several conferences in France in June 2012 in Vienna, Metz, Lyon, the Forum of the Association " Men Women in the City "(Brainville, Haute-Marne), and the University of Nancy 2. A meeting with M. Deshaies gave rise to the project for a post-doctoral research programme for one year in 2013-2014, included in a five year research programme from 2013 to 2018 with the Laboratory Loterr.

An international partnership is being initiated with the International Water Centre (IWC). The research is also linked up with the Institute of Social Territorial Dialogue in Poitiers, which made the "drop of experience" the basis of its pedagogical approach (Braconnier, ref. 11). The case study of the Kimberley / Canning Basin could also be a contribution to the Franco-Australian Forum which has initiated a research programme on "Water, Land and Food security" (ref. 12).

The programme focuses on mining companies and sustainable development centred on the theme of "Water Source of Life".

A basic principle of the programme, in accordance with the AIATSIS Charter for joint scientific research will be a partnership agreement between the University of Lorraine, IWC and Nyikina people (ref. 01). This programme is also be integrated into the ISOCARP consultative membership to UNESCO-Liaison Committee, and is linked up with UNESCO-LC - Africa Forum water research in 2014.

The main lines of research and case study chosen.

Indigenous peoples have often lived in their territories for thousands of years, even tens of thousands of years, as is the situation for Nyikina people of Mardoowarra-Fitzroy River. Nyikina people identify themselves as yimardoowarra, meaning "*people who belong to the Mardoowarra: the lower region of the Fitzroy River*" (Poelina & Perdrisat, McDuffie, ref. 10). The river sustains their life and is central to their culture and heritage. They know and have practiced coexistence and balance between society, culture and the environment over a long period of time. They coexist with birds, snakes, animals, nature, an approach that is not individual, but community life. The important issue for today to share and teach the multi-millennial living experience, not only for Australia but for the world. Indigenous peoples represent 300 million people worldwide, and they have about 24% of the land, on which they live in harmony. Nyikina people, like almost all indigenous people, is peaceful, non-violent, "protectors" of the environment and not simply "protestors" to industrial development, "actionists" and not "activists", i.e. eager to act and to participate in decisions, and not just "talk". Dialogue and the action must be "clearly informed" by evidence.

The federal and state/territory governments do not recognize the sovereign rights of Indigenous Australians over their lands (ref. 13). Without the right to veto destructive industries on their land, indigenous lands are effectively "available" to increasing pressures from strong multinational mining corporations. An operational framework for engagement is

required to promote dialogue and to involve local populations in decision, in order to reduce and manage conflicts that may arise. It is important to be open and honest about the risk and effects of pollution and destruction of the territories. In the territories, the water is known to be a finite resource, limited, and the calculation of water really available should be included in any project feasibility study.

The question is how to achieve a different industrial or mining development in a process of dialogue and action to create participatory planning and informed decision making for a better humanity. This case study provides the basis for such an approach, with a view to contributing to the Australian national debate on the renewal of planning.

The location and local context

The West Kimberley region of Western Australia is considered one of the last great wildernesses of the world. Vast areas of the region were National Heritage Listed in 2011 for multiple world values containing the world's largest footprints and most complex dinosaur trackway, ancient rock art, pristine coast lines, rich ecosystems, and unique living Aboriginal cultures co-existing with Asian and European heritage. Many Indigenous peoples from around the world share the view that land, water and people are intrinsically entwined.

Figure 1: Map of Australia and the situation of the Kimberley (450 000 km²) and Canning Basin (approximately 500,000 km²) in northern Pilbara.



The territory has seen a similar size to France and Germany combined.

Figure 2: Left : roads ; Right : Catchment of Fitzroy River (93 829 km², 733 km, average 2 400 m³/s, discharge 84 760 m³/s) which is the size of the Rhone (96 000 km², 812 km, average 1 690 m³/s).

Others :

- Negro River, Argentine (102 000 km², 550 km, average 762 m³/s)
- Pô River, Italy (71 057 km², 652 km, average 1 500 m³/s)
- Sanaga River, Cameroon, (129 219 km², 918 km, average 2 072 m³/s)
- Rhine, Swiss, France, Germany, Netherland (1233km, 185 000 km², average 2 300 m³/s, max. 12 900 m³/s 1926)

Source data and left map Wikipedia . Right map : Government of WA Department of environment



In Western Australian (WA) the government has singlemindedly promoted industrial development without demonstrating responsible engagement with regional WA. I shared a

criticism of the WA Premiers autocratic decision making process in September 2011 with the Australian planners ISOCARP. A planner quoted to me the legality of pre-industrial work and an agreement of the Aboriginal Traditional Owners in October 2011. In November 2011, the agreement was invalidated by the Western Australia's Supreme Court of Justice (ref. 14a) ... This and other examples particularly from the families of Broome who gathered together to show that there is a need to engage participatory planning. There needs to be an operational framework for engagement to establish regional governance mechanisms. Responsible and representative regional governance needs to include a wide and diverse range of views regarding how the Kimberley is to be developed now, for current and future generations. Contemporary industrialisation plans for the Kimberley are not grounded in responsible planning methods based on good science or industry best practice evidence; planning is being determined primarily for a political and economic interest.

Figure 3 (above): Left: Map of indigenous peoples affected by this territory. Source : AIATSIS, 1994, (ref.14b); Right: The area affected by mining and shale gas. Green : protected areas. Brown : the mining exploration licenses and dark pink gas exploitation (Mineral, oil and gaz leases, claims and licences cover 76% or 1,2 million hectares of the rivers, wetlands and floodplains of the Kimberley) Source : Environs Kimberley (<http://www.environskimberley.org.au/>)

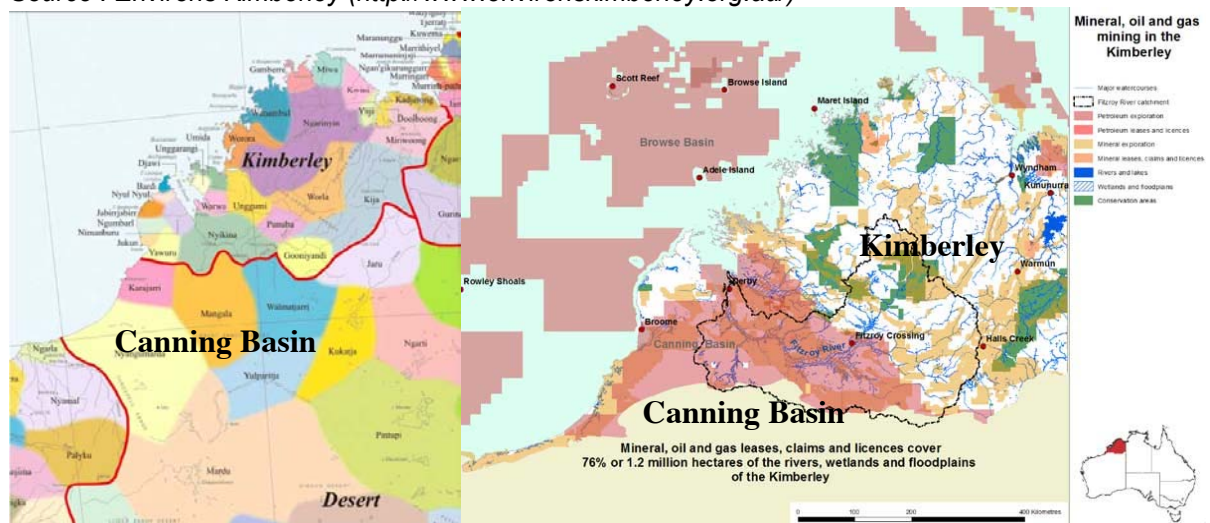
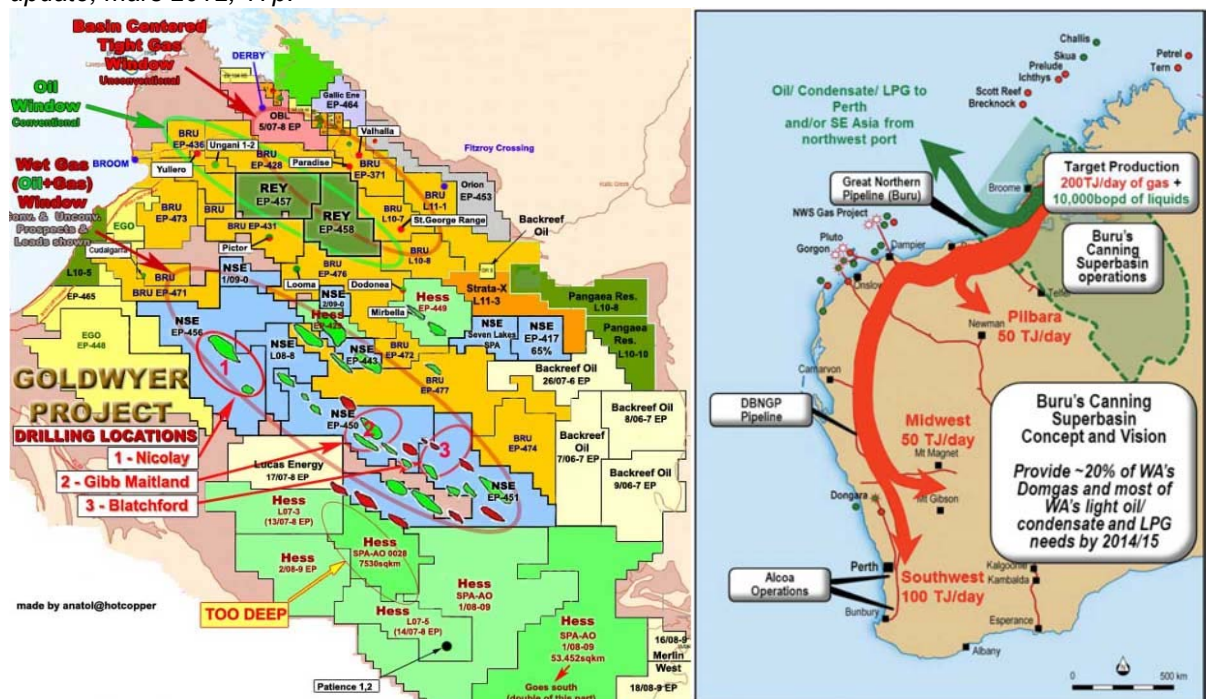


Figure 4 (above): Right : Map of exploration licences Source Hotcopper, ref.14c). Left : gas exploration license granted to date. Right « Buru has a focused and well developed business plan that is being successfully executed by bringing resources into production » : Source : Buru Energy, Corporate update, mars 2012, 17p.



The Native Title Act (1993) created laws that effectively create conflict, manipulation and division within and outside of Indigenous Native Title Claim groups (ref. 15). Australia's Native Title law cannot stop mining because there is no capacity for Indigenous Traditional Owners to veto destructive industry on their ancestral lands. It only gives Traditional Owners a right to negotiate with resource extraction companies. The United Nations states indigenous people need to give « Free, Prior and Informed Consent » before extraction can take place. Native Title law has become an instrument of oppression as Aboriginal people are forced into signing mining agreements before all of the science, heritage and industry knowledge is gathered and evaluated. State and national mining approvals ignore traditional knowledge, science and industry best practice. Governments are weakening environmental laws and regulations; annexing land from local government and disregarding international obligations to all Kimberley people (ref. 16).

Australia has a two tiered environmental assessment process. Each state/territory has an Environmental Protection Authority (EPA) legislation and the federal government has the Environmental Protection and Biodiversity Conservation Act (1999, EPBC Act). There has been a great deal of pressure on the federal government from extractive industries to 'remove the green tape' by removing the EPBC Act and leaving the state EPA's as the single environment assessment process. The state EPA assessment process for the multi-corporation LNG processing hub proposed for Walmadany-JPP north of Broome demonstrated political influence created sufficient flaws in the process resulting in a loss of community confidence in the EPA's credibility and independence (ref. 17).

This paper advocates a new way of doing business around integrated management of land, water and food security in the Kimberley region of Western Australia. People in the region are looking for a co-operative way to develop northern Australia's multiple economies from a wide body of information and world views (Crough, & Christophersen, 1993, ref. 18). The inclusion of Indigenous views is required to provide genuine participation in the process in order to overcome the colonial paradigm that has shaped the region's development.

Indigenous Australians have been trustees from the beginning of time, guardians of Australian land, waters and natural resources for current and future generations. The United Nations Charter of Human Rights promotes the wellbeing and sacredness of all life not just human life (ref. 16). Australians need to think carefully about engaging in the destruction of Australian lands and waters and surrendering food security. Together, we must recognise and protect all inhabitants who are connected to these living water systems.

The report on the water for the Kimberley and the Canning Basin in 2013, entitled "Regional Kimberley water level from 2010 to 2030" written by the Water Department of the Western Australian Government is particularly incomplete in relation to forecasting the water needs of the industrial sector, as can be seen in the following two chapters: the lack of presentation of the needs assessment for water for the Gas Hub James Price Point, and no comment on the water needs of Canning Basin (ref.19). The strategic objectives are generous and ambitious, however there is uncertainty regarding the implementation process.

Australia has developed an integrated water management plan for the Murray-Darling basin due to public concern over the scarcity of water, drying wetland areas, salinization. Furthermore biodiversity at risk with fauna now less than 10% of the situation before colonization. The centralised technocratic approach of the Murray-Darling Basin Authority (MDBA) with minimal level of interactive engagement with stakeholders is inappropriate (K.A. Daniell, ref. 20). The calculation of really available water has to be reviewed three times in a century, each time in a downward trend. The responsible governance of water is of great importance to take regular measurements, to inform decision making so that water use can be adjusted to protect the environment. Why has this device not been developed for other watersheds BEFORE the ecological disasters? Barriers to stakeholder engagement and collaborative approaches have to be analysed to prevent its rejection for wrong reasons (Barreteau, ref. 21)

§ 1 - Drops of Experience n°01 : teaching from Walmadany-James Price Point

The WA Government decision to select Walmadany-James Price Point for the site of the world's largest liquefied natural gas (LNG) processing facility generated competing waves of

human energy to promote or resist the projects development. These drops of experience inform future actions particularly in relations to planning. The Walmadany-JPP experience has demonstrated the need to widen community involvement through participatory planning including citizen science in regards to considering the development of resource extraction of the Super Canning Basin and the Fitzroy River catchment. There needs to be investment into generating the body of evidence from the Walmadany-JPP experience and transferring that knowledge into a regional Kimberley land, water and food security governance model. The focus is to build the knowledge base from multiples sources to establish an operational framework for engagement to enable the people of the Kimberley to fully participate in determining what is best for their region, whilst simultaneously contributing to the national growth and development.

State Planning reform is of particular interest as the WA Premier has used parliamentary powers to enact new laws and agreements to protect the rights of corporations and multi-national resource extraction companies over the rights of ordinary Australians (ref. 22). Planning laws and policies have seen state rights over ride local government rights. The State Government is excising Crown Land out of the Local government planning jurisdiction however; local governments are expected to regulate planning and development conditions without the investment to ensure standards and compliance of large scale projects are maintained. Projects between 3 – 7 million dollars bypass local government assessment processes and are assessed by an independent Development Assessment Panel that has been appointed by the Premier. Furthermore the WA Environmental Protection Authority (EPA) was subject to legal challenge in the Supreme Court by the Wilderness Society to make transparent the structural and systemic processes that approved the development of Walmadany-James Price Point.

The WA Aboriginal Heritage Act (1972, ref. 23) is supposed to protect Aboriginal heritage for all West Australians, however in the case of the Walmadany-JPP the Aboriginal Cultural Material Committee (ACMC) took public submissions. These submissions clearly demonstrated the rich living culture heritage values of the Walmadany-JPP site over many decades. All of this information was ignored by the Minister for Aboriginal Affairs who supported Woodside Pty Ltd plans to clear endangered ecological communities and dig amongst sensitive Aboriginal registered and unregistered cultural and burial sites.

Robin Chapple MLC Member for Mining and Pastoral Region questioned the Minister for Aboriginal Affairs who admitted that “there are currently a massive 6,234 lodged Aboriginal heritage sites awaiting assessment by the ACMC (ref.24). According to the Department of Aboriginal Affairs latest annual report, the ACMC has been working for 40 years, and there are approximately 15,000 registered sites with another 15,000+ heritage “places” – so a charitable view would be 30,000 assessments over 40 years – equals about 800 assessments per year. At that rate, the admitted backlog of over 6,000 sites will take around 8 years to clear! “If we allow that they can also consider site assessments at the same rate – the backlog now looks more like 40 years! Mining companies are equally frustrated by the lack of certainty which results from not knowing what sites are in areas where they are looking to develop projects”, according to Mr Chapple.

The decision by Woodside and its joint venture partners to extract and process gas from the Browse Basin off the West Kimberley coast by a floating LNG processing plant out in the middle of the Indian Ocean is an example of maximising profits by shifting to the world’s best practice. Moving to Floating LNG shows Australia’s capacity to embrace cutting edge technology without the destruction of ancient living Indigenous cultures and the environment.

The development of Walmadany-JPP as the largest liquefied natural gas plant in the world is now a dirty handkerchief, no company wants to touch it. It’s now time to leave its cultural and environmental heritage values intact, leave its precious environment in pristine condition and avoid any further community unrest and division by rescinding the Browse (Land) Agreement Act (2012, ref.25). This way the Kimberley can be saved for sustainable development and for future generations of Australia and the world to enjoy. The West Australian Premier Barnett, has confirmed that the jetty proposed for Walmadany-James Price Point was the hidden agenda for the industrialisation of the Kimberley. The passage of the Western Australian Natural Gas (Canning Basin Joint Venture) Agreement Bill 2012 state (Bill No.

324, ref. 26) agreement over the Canning Basin has provided the Premier with renewed obsession with an onshore gas hub in the Kimberley regardless of the relative merits of any associated project.

§ 2 - Drop of experience No. 2: What can we learn from this teaching for the Canning Basin (area concerned, Native Title, national consultation)?

The development and subsequent temporary abandonment of the proposed Walmadany-James Price Point gas hub has distracted attention from a much larger and riskier series of industrial projects. There has been little media coverage of the exploration of shale/tight gas in the Canning Basin: a systematic exploitation of a shale gas project estimated the volume of gas to be about 400 tcf-trillion cubic feet or 11,200 km³ or GM³- on 550 000 km² in the Canning basin (which covers the northern part of the basin downstream of the Fitzroy River) see map above about exploration licenses- (Buru Energy, ref. 27).

Since 2010 companies such as Oil Basins Ltd., and now Buru Energy and Rey Resources have undertaken exploration and fracking of the savannah rangelands and river country east of Broome and are considering transporting unconventional shale and tight gas 170 kms to Walmadany -JPP. The mighty Mardoowarra-Fitzroy River is one of the world's last great wild rivers. However, from the catchment to the coast it is covered by mining and gas fracking exploration tenements. The proposed Duchess Paradise thermal coal mine would be the first mine in an 8000km² coal mining province and there are plans to mine uranium and other rare mineral sands. These types of developments risk poisoning and depleting the Canning Basin groundwater and contaminating the Mardoowarra-Fitzroy River and everything that lives in and off that water (see ref. 10).

The Kimberley is at a critical point where some of the proposed developments present a real threat to the land, water and food security as well as the unique way of life. Many people in the region are not anti-development rather they are anti-unethical development and share a particular concern for the notion of development at any cost. The mining and fracking laws are extremely unfair and do not reflect the values of the Kimberley region. There is no opportunity to consider the 'facts' about the real impacts of resource extraction, processing and transporting methods. Transparent participatory planning is needed to support an operational framework of engagement to reveal the real impacts of each resource extraction project and the cumulative effect of all of the industries proposed for the West Kimberley.

There are generous government incentives for investment in the resources industries to create employment. Similar levels of government investment and tax concessions into exploiting the natural resources that the Kimberley already has in culture and conservation would create jobs, research and investment.

§ 3 - Drop of experience No. 3: good practices, a methodology IWRM in Canning Basin

Intercultural issues

Modern Australia was established on a brutal history of conquest, annexation and colonial occupation of Indigenous lands, waters and liberty. In a little over two hundred years the Aboriginal population has been reduced from around two million to about 410 000 (2% of the Australian population) (ref. 28). Contemporary colonisation speaks the language of global trade agreements, international need for resources and multi-national corporate investor rights. The impact is still as it has always been; private industry and government working together to remove Indigenous people from their land, lifestyle and spiritual connection. Colonisation is a conflict paradigm which continues to raise intercultural issues in Australia.

This issue is particularly important for this presentation today at the 49th Congress of the ISOCARP. Aboriginal culture is closely linked to the land, plants and animals, and the stars. Aboriginal culture disconnected from land losses meaning (Preaud, 2009, ref.29). "There" (Berque 2000, ref. 30) sense to territory, "here and now". It is the loss of meaning that causes degradation of the lives of Aboriginal peoples: abuse, addiction, dislocation, imprisonment (30% of the prison population ...Indigenous Disadvantage Report) (ref 31).

Abstractions of globalization are here confronted with a unique territory, singular, specific, particular. It was as late as 1992 that Eddie Koiki Mabo won an appeal to the High Court of Australia to overturn the theory of Terra Nullius that maintained the legal fiction that

Indigenous Australians were not connected to their land (ref. 32). The deeds of possession are in Indigenous culture: relationships, dreaming stories and songs, paintings, rituals, dances and land management.

Resource extraction corporations can avoid confrontation by negotiating an agreement with Traditional Owners under the Native Title Act (1993). Legality may obscure the legitimacy, as Indigenous people often feel compelled/ coerced into making mining agreements because of the short timeframe, lack of recognition of their rights and no power for Traditional Owners to veto destructive development on their land.

In order to engage Indigenous people there needs to be an intercultural participation process that is permanent, scalable, regular, and can be formalized by the IWRM model of UNESCO in support of sharing the cultural diversity, science and education of all peoples of the world (ref. 09). This model seeks to articulate, deconstruct and resolve confrontation between different interests, and different cultures in regard to their scientific assumptions, cosmological, culture and spirituality.

This necessarily requires us to consider these assumptions to lay the scientific and philosophical bases of intercultural dialogue, an approach that respects the Charter of AIATSIS and work of Turiha Smith "Decolonizing Our Methodologies" (ref. 32). These databases allow you to see the IWRM process in a new light, and ground participatory planning proposals that contribute to the debate on how local, state and federal governments maintain water, land and food security.

Review of the scientific assumptions of Western culture

This review is essential to allow, perhaps, an intercultural dialogue on a common basis, in accordance with the differences.

Who can doubt that the philosophical and scientific roots of our Western science comes from Aristotle, Plato and Leibniz, Descartes, Hume, Locke, and Kant ? In the book *Process and Reality; An essay in cosmology* (see ref. 01a), A.N. Whitehead a career mathematician and physicist undertook a critical review of Western science and synthesised the most advanced science in terms of "philosophy of organic science".

This work is eighty years old but it remains relevant today because it incorporates reflection of quantum mechanics, and scientific verification of quantum assumptions. The famous EPR paradoxe (Einstein-Podolsky-Rosen) has been established so truly essential that it has been recognized by the International scientific community in 2002 by the work of Bernard Aspect (ref. 34). Science also has its slowness ... This slowness of science, and the recent work calls the organic scheme in the more immediate present, as evidenced by the growing number of works from the New Covenant I. Stengers and I. Prigogyne, Nobel Price (ref. 35).

The organic scheme respects the Redstone Declaration of Indigenous Peoples (ref. 36): interrelationship between all the elements of Nature, ... Planners who signed the Charter of the Town Planning for the twenty-first century of the SFU Europe will also find themselves their new principles.

The organic scheme meets the most rigorous scientific criteria: logical coherence, adequacy, applicability and necessity (see ref. 6). In summary, in place of the subjectivist principle of Descartes takes place a reformed subjectivist principle, whose final expression by Griffin after 30 years of research could be the pivot of the new scientific paradigm (ref. 37). On this renewed basis, materialism is henceforth not scientific (it does not respect the coherence and facts), dualism is replaced by a duality without dichotomy. Dichotomies become contrasts: the aesthetic, architectural and urban vocabulary of the Renaissance is now integrated in the organic scheme, both philosophical and scientific. The concept of substance is no longer the transition between two of the "drops of experience" which has formed the world (see figure XX below).

The geographer Eric Dardel refers to Whitehead (ref.38). The geographer Augustin Berque describes "moments of existence" that all have their resonance with the "drops of experience" (Ref 31). These organic groups are categories of feeling, and renew the categories of thought of Aristotle and Kant. These categories are listed by Gilles Deleuze (ref. 39), Stengers and Ilya Prigogyne (ref. 35).

The organic approach is the basis for a growing number of jobs in all areas of aesthetics, anthropology, ecology, economics, education, ethics, history, metaphysics, psychology, public policy, sociology, theology, theories of knowledge, and finally: urbanism and architecture. (ref. 40). For urban planning and geography, the work of Joseph Grange deserves dissemination and implementation debate, yet this remains to be done (ref. 41).

Openness to all disciplines also means opening the songs, dances, rituals and symbols of indigenous peoples, and for this study, the Nyikina people. In an experience-based approach, the "drops of experience" cannot be limited to disciplinary segregation. The organic scheme provides an opportunity for indigenous cultures innovative, open, scalable scientific expression. The recognition of internal relations, the removal of the distinction between subject and object open the possibility of a base of intercultural dialogue and the development of a tool, where the ontological and cosmological foundations are explained.

In this approach, this vision, Western science and Indigenous knowledge work collaboratively (Bohensky, Mahu, 2011, ref. 42). The asymmetry highlighted by Bruno Latour between ethnography "others" and the Western culture disappears: we are equally exotic to indigenous peoples (Latour, Rist, ref. 43). There are only men and women who have to organize the same territory. Sustainable development is driven by the drop of experience and advanced in a "spiral", as we will show below.

Clearly, the categories of organic scheme are classes of feeling and not only of thought, which means that every part of the experience has a combination of sensory information. The second phase operates abstraction from experience, i.e. the "imaginative generalization" that allows the emergence of the third stage of new proposals. At the end of the fourth phase of decision, the winning proposal "happens in the real," "is a new reality." These new realities are offered in the fifth phase of new transformations.

It is all of these phases as "drops of experience" or "seed of thought" (Teilhard de Chardin, ref. 44), or even monads (Berque, Tarde ref. 45). The technical term is "current entity" or "quantum discount" (Ref. 8, PRX, AN Whitehead). The pattern resulting from gout experience is as follows:

It is possible to develop a simple approach to sustainable development around the theme of water, set in motion by the "drop of experience." What is it? The "Drop of experience" is the essential process for any action of each person in their daily or professional life or professional, the simplest action the wisest. This is what each of us does "in practice". In practice, every action takes place in five stages or phases:

a - A stage of apprehension, **a**nalysis or "**a**udit" allows to manage a network of **a**ctors, and their interactions. The question is "Who are we ?". This generally leads to a diagnosis and "inventory" This is also a good first step in our approach. Going further, what is it?

b – (in French: "**b**ut" = aim) A stage of vision. It means to have a goal, a vision, a purpose, namely, "where are we going ?" or "what can we expect ?". These are signs / buoys that can guide us, as in mountains, on the sea, or in the sky. Sometimes referred to as purpose but the notion of purpose is ambiguous: there are long-term purposes (the headlights of a car), or short-term (the sidelights on a car). In the long run, those are the goals, vision. In the short term, it is proposed the next step.

C – A stage of proposition. This is the stage of development of **C**ollaborative proposals. These proposals **C**oordinate information in the sense of vision, and require strong **C**ooperation to finalize these proposals. The question is "what can we do ?" The transition from vision to strategy is proposed: it is in fact trying to achieve the vision taking into account the real state of the place, to adjust possible solutions. These proposals may form a programme. But what about all the proposals that emerge?

d – A stage of decision. The **d**ecision allows to achieve a particular proposal, to **d**etermine which will be implemented, to make a judgment in a **d**ecision process. The question is "What do we do ?"

e – A stage of commitment. The last step is the commitment of the action and its **e**valuation. The question is: "what have we done ?".

Each human group has his own expressions for the five stages. You can see I have proposed several for each above stage. The terms may change, but the steps are essential because a project, whatever it is, will be poor if there is no vision, ineffective without good proposal inadequate if not starting from a good inventory (and ultimately equally ineffective), wavering if not a good decision-making, and aborted if not a concrete commitment, implementation.

The simplest, example shows that it is applicable to any situation in ordinary life: when a housewife prepares a meal **(a)**. She receives friends, and dreams of a convivial meal **(b)**. The menu suggestions depend on the state of the refrigerator and the usability of its reserves **(c)**. However the availability or not of other items in the stores will quickly influence decisions that will alter initial proposals **(d)**. Then she starts preparing dishes, and guests are responsible for the evaluation, keeping in view the satisfaction of all **(e)** ...

From there, the examples can be more professional, more scientific, more members. I want to make the point that a drop may experience scientific extensions (its scientific name may be "quantum discount" or current entity) but also philosophical (systemic philosophy / or organic philosophy of the process) and even cosmological (approach micro / macro, ontology underlying ...) It can account for the diversity of cultures because it freezes nothing, and in this sense this approach is "universal." If that is not taken into account, then you must change it. It is flexible and scalable.

Therefore, it is not surprising that many operational approaches seem to have many practical applications such as the development of local Bernard Vachon, territorial governance of the Foundation for Human Progress, the tool educational association Men Women in the City, Patrice Braconnier PhD (Vaillant, PhD, ref. 04).

The contribution of the drop experience in Integrated Water Resource Management (IWRM)

United Nations –World Water Assessment Programme, in collaboration with UNESCO –Hydrological Programme wrote in 2006 a specific method to solve water problems all around the world, called International Water Resource Management (IWRM, see ref. 09). Water is in close link with the living culture of people, and no success can be reached without taking in account of these lived experiences, these feelings.

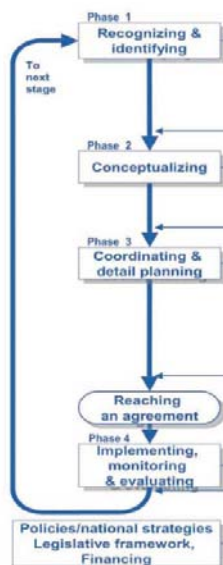


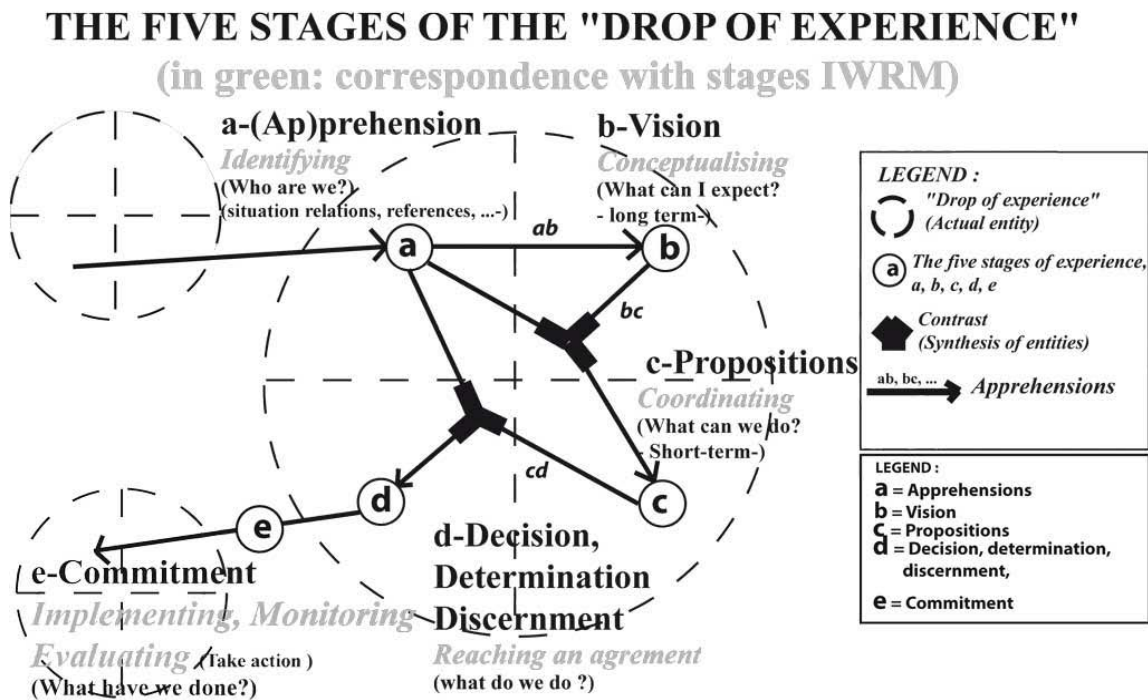
Figure 5 : IWRM Process See Ref. 09, Part 2.1: Features and Structure of "the Guidelines for IWRM Coordination"

In the left diagram , it is possible to compare the phase to phase "drop of experience" and the IWRM process to observe that IWRM is a "drop full experience", with technical oriented formulation "project".

The purpose of the organic approach is to provide an ontological, metaphysical and scientific basis for both the IWRM plan. A less technical formulation appears possible, even desirable for IWRM becomes universal, "unity in diversity", and in connection with all scientific approaches of different disciplines mentioned above. **The organic thought gives its full depth to the expression of values in integrated intercultural approach to northern Australian water planning and development that takes into account traditional knowledge, rights and interests.**

When we compare term by term phases of the "drop of experience" and phases of IWRM, we see ther is synergy in each phase. The diagram of the drop of experience with the phases of IWRM can then be as following

Figure 6 : FINDINGS 1 : the drop of experience with the link with IWRM (UNESCO/IHP – UN / WWAP)



Integrated water management is a spiral movement in time: the cycle consists of several phases that to lead to a decision, approval, or implementation of actions. Below is the schematic diagram of the spiral and its application to Murray-Darling integrated water management.

Figure 7 : IWRM Spiral Source: UNESCO/IHP & UN / WWAP IWRM Guidelines at River Basin Level , Part 2-1, page 3 ; Right: IWRM spiral of Murray-Darling River (page 107)

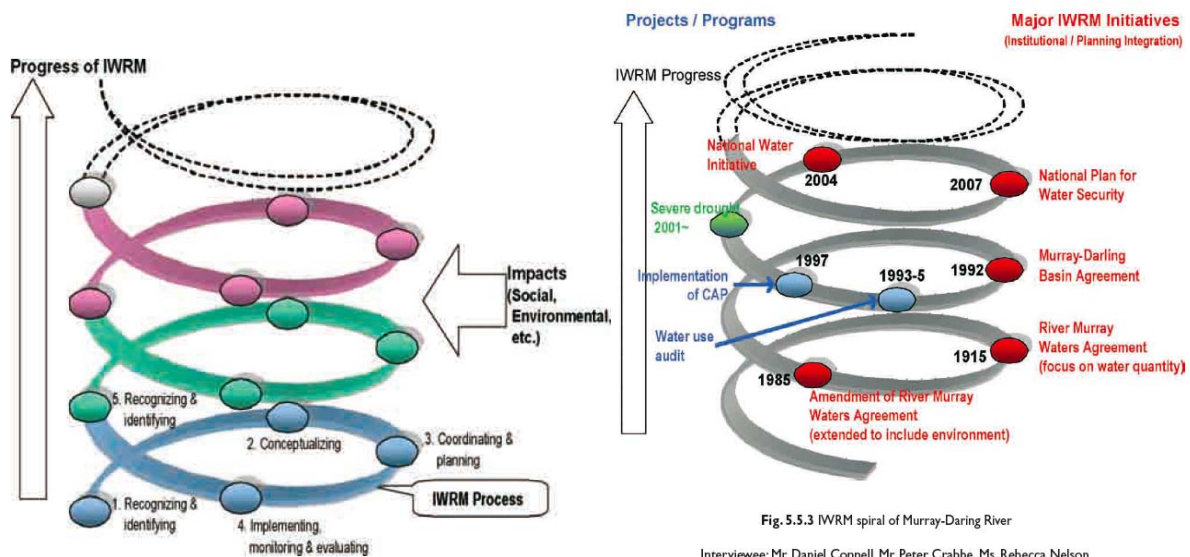


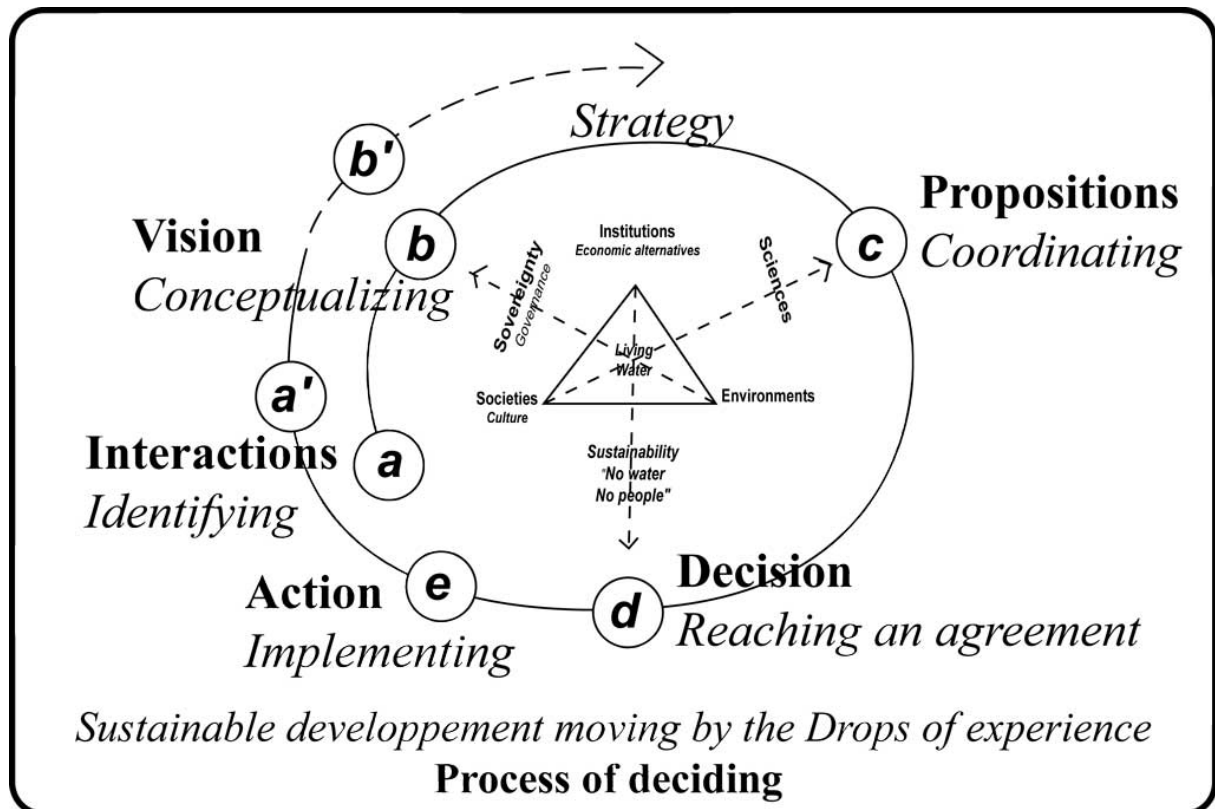
Fig 4.1 Spiral evolution of IWRM

In this approach, there is more to obtaining indigenous peoples "approval" under (Native Title) law as information would need to be + - complete. It's about working together permanently, from local communities, the state, to federal government throughout in common and intercultural process, with measures, following up common criteria, the definition of successive goals, adjustments.

The heart of this case study is the expression of this method of consultation to experiment in the Canning Basin first, then all the Kimberley. This is a proposal, which starts from an observation, which is guided by a vision.

It is now possible to provide a comprehensive scheme of sustainable development, moving by the drop of experience in terms of the integrated management of water resource. This scheme, developed for taking action is the following:

Figure 8 : FINDINGS 2 : Sustainable development moving by the drop of experience



§ 4 - Drop of experience n° 4: The proposed action

The proposed action can be developed by grouping the actions according to the five stages.

4.a - Apprehension / Recognizing & Identifying

- **The proposed action can be developed by grouping together the actions according to the 5 stages**

- Stakeholders participation: proactive disclosure of information for facilitating coordination and negotiation among stakeholders reaching agreement on a plan.
- Identify potential priority areas.
- Inventory of initiatives already completed or in progress (TRaCK, Kimberley Water Plan, Kimberley Land Council, Broome Development Plan 2030, PhD in process, University engaged)
- Roughly estimate the available amount of water in the rivers basins and the extend of water use. If the basin water resources are used (previously) extensively, study in detail the natural or original capacity of the basin. Determine the water budget in the basin.
- Accounting for social, economic, and environmental needs and the demands and requests of various sectors, and future forecasts.
- Enhancing public awareness. (show various combinations of problems and solutions)
- Be selective when collecting data by setting priorities based on the problems
- Always keep eyes, ears and mind focused on the real situation in the field
- At this stage, recognize the necessity of IWRM process.

4.b – Vision / Conceptualizing

- Develop the capacity of a leader who can recognize problems, find necessary solutions, and implement them.
- Conduct interviews with relevant people/sectors can prove effective.
- Prepare an institutional framework to aggregate experience and traditional indigenous knowledge

- Harmonize related plans including those from outside the water sector (enlighten the hidden agenda, obtain full information for future full consent, ...)
- Take into account the appropriate balance among water-related sectors in the whole basin.

4.c - Proposals collaborative / coordination & detail planning

- Prepare multiple options which may be acceptable to stakeholders.
- Prepare a framework for stakeholders participation to build consensus among stakeholders
- Coordinate in such a way so that the resulting changes will be favourable for an equitable relationship among stakeholders. (in the event that the coordination process show no sign of reaching an agreement, return to the previous process and review the propositions as necessary).
- Consider ways, including policy interventions, to secure water supplies during extreme events.

4.d - Decision process / Reaching an agreement

- Determine the cost allocation acceptable to all stakeholders by ensuring that it is justifiable.
- Develop infrastructure with an eye to long term sustainability
- Continuously collect necessary data and share among stakeholders

4.e - Commitment to action / Implementing, Monitoring & evaluating.

- Continuously monitor and evaluate the effectiveness of IWRM activities (plans, projects, infrastructures, legal framework, organization, etc ...)in the basin.

This process can be renewed over the years.

In conclusion:

This case study is only the beginning of a process of research and action. It seeks to articulate the assumptions of research, required for integrated management that are transferable to any other part of the world water methodology.

Due to remoteness, hot tropics and arid deserts northern Australia has not experienced the intensity of colonial impost as the south. Many Australians view the north as wild wasteland that can be manipulated by technology for agriculture or resource extraction. Lurking deep within these ancient lands are mining corporations' extractive dreams: coal, uranium, bauxite, copper, iron ore, coal seam and shale/tight gas, diamonds, and other precious metals. The vast number and magnitude of potential resource projects is placing the region under overwhelming social, cultural and environmental pressure. Despite the attractive presentations on the mining companies' websites, mining often leads to the loss of connection to the land and of social ties for indigenous peoples (Hill et al, 2006, ref. 47). Moreover pollution generates public health problems. Calculating, assessing and managing water that can really be mobilized inevitably raises questions of governance, the implementation of scientific impact studies, and practical development of every unique and singular space (eg Nyikina Country). This issue concerns all potential or current operating resource extraction sites in the world particularly where indigenous peoples live.

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