"Tank-thoughts" from "Think-tanks"
metaphors constraining development of global governance

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Introduction

Fish tank (Aquarium, Vivarium)
Battle tank
Reservoir tank (Gas tank, Water tank, Air tank)
Holding tank (Holding pen, Decompression tank, Cryogenic tank)
Septic tank (Wastewater disposal system)
Sensory deprivation tank (Float tank)
Cultivation tank (Breeding tank, Vat)
Simulation tank (Simulators)

Integrative perspective: configuring the set of tank metaphors

References

Introduction

It is from "think-tanks" that the new understandings of the challenges of world society and global governance are now widely assumed to emerge. As the working environments of the "best and the brightest", they are the source of new policy options valued by governments. In particular right-wing think-tanks have been the source of the policy inspiration for the emergent American Empire and the strategies to ensure its predominance. Concerns expressed regarding the "intellectual failure" suggested by the recourse to force in Iraq presumably reflect their inability to formulate viable alternatives -- a weakness shared by all think-tanks from within the Coalition of the Willing. [more]

Think-tanks are often created, or linked to, more conventional institutions -- typically universities, corporations, governments, political parties or other bodies. In the status competition between institutions, creation of a think-tank may well signal a capacity to act as an attractor for intellectual excellence. think-tanks tend to pride themselves on their interdisciplinarity -- in contrast to universities -- and possibly their intercultural and international qualities.

The web provides many resource pages linking to such bodies [more; more; more; more]. In particular, NIRA's World Directory of Think Tanks provides a systematic introduction to the world's most prominent and innovative public policy research institutes, better known as think-tanks. The 2002 edition contains information on 320 selected think-tanks from 77 countries and regions.

Such environments may well have been carefully designed to optimize certain processes -- and may do so successfully in the light of quantitative criteria of productivity: titles published, patents, value of contracts or grants, awards, etc. The concern here however is whether there is a particular quality to the think-tank environment that, beyond political affiliations, may limit or distort conceptual processes relevant to global governance.

Work on the role of metaphor, notably by George Lakoff and colleagues (Metaphors We Live By, 1980), explores in particular the unforeseen cognitive effects of use of the "container metaphor". Given that "tank" is indeed a form of container, there is a case for exploring how the term "think-tank" may inadvertently be affecting the way in which conceptualization is sought, undertaken and delivered from such environments. It is however important to recognize the degree to which "think-tank" may be an externally applied label to a range of institutions that may not perceive or define themselves in terms of "tank". This does not detract from the consequences of such bodies being treated by their clients as "think-tanks" -- imposing upon them a requirement to think "within the tank" rather than "out of the box", as some might otherwise believe to be necessary if the much-sought "new thinking" is to become
The work of Gareth Morgan (Images of Organisation, 1986) has also proved to be seminal in describing the 8 metaphors through which organizations tend to be viewed: Machine, Organism, Brain, Culture, Political System, Psychic Prison, Flux and Transformation, and Instrument of Domination. In this light, operating in any one of these metaphors of course reveals its own truth. The question is what are the truths revealed by operating in relation to the metaphors associated with a "think-tank"?

The exploration here follows from an earlier and more general paper (Missiles, Missives, Missions and Memetic Warfare: Navigation of strategic interfaces in multidimensional knowledge space, 2001) and from previous work on metaphor and governance (see Metaphor as a Language for Global Governance, 1993; Governance through Metaphor Project).

In the spirit of Gareth Morgan's inquiry, the following sections explore the implications for strategic thinking due to understanding a think-tank as being in some way patterned on any of 8 "tank" metaphors: fish tank (aquarium), battle tank, police holding tank, septic tank, gas tank, sensory deprivation tank, cultivation tank, or simulation tank. In a final section, as a tentative exercise, these individual tank metaphors are interrelated in a framework to highlight patterns of commonality and complementarity in think-tank operation.

The concern here is that, with whichever interpretation, a "tank" can be fatal. This is also the case with the occupants of think-tanks -- whatever their ultimate fate.

**Fish tank (Aquarium, Vivarium)**

There seems to be some uncertainty as to the origins of the term "think-tank". One of the most obvious is by association with a fish tank or aquarium for fish. This perspective is reinforced by the conference "fish bowl" technique in which participants, possible seated in a circle, view the process of an interacting panel seated together in the centre of the circle.

Possible framing and conditioning effects of this metaphor then derive from:

- **containment**: as with all tank-related metaphors, there is a primary sense of containment, namely of a controlled, if not protected, environment. This is one of the attractive dimensions for researchers in a think-tank.

- **concentration**: a fish tank can be used to bring together a variety of exotic species which might otherwise be sparsely dispersed in a natural environment. This too is important in the case of researchers, especially when the variety is imposed to a degree beyond the comfort zones of participants -- in a spirit of cross-fertilization. Concentration may also be understood in the sense of an intellectual concentration camp.

- **function**: five functions may be distinguished:
  - **decorative**: this is the most obvious reason for an aquarium (populated by gold fish, exotic varieties, or as in a traditional carp pond). The only requirement is that the occupants look elegant, interesting or fierce. A think-tank may be created as a "decorative" adjunct to a university to contribute to its prestige and distinction. The researchers selected, or invited temporarily, may also be primarily for decorative purposes -- to the advantage of eccentrics.
  - **suspicious**: an aquarium may be set up and positioned primarily to focus subtle energies, according to the principles of feng shui, to the benefit of the environment. Similarly such choices may be made by the sponsoring institution of a think-tank (eg university or corporation). Just as with an aquarium the occupants of the think-tank may then be selected for their colour. In feng shui terms, there may not even be any need to nourish them since as they die of starvation they can be replaced.
  - **research**: an aquarium may have as its prime function the research on its occupants, as for marine research laboratories or for children at home. This internally-directed function is seldom a prime focus in the case of think-tanks, rather the research focus is directed onto external phenomena.
  - **transitional**: the fish tank may primarily function as a holding tank (see below), whether in a fish market or a restaurant (awaiting consumption). Fish would be moved in and out according to need. This function is also evident in the case of think-tanks that may simply used as a holding place for researchers until required elsewhere -- possibly as a graceful retirement process.
  - **breeding**: fish tanks may also be used to breed fish for sale and distribution (see breeding tank below). This function can also be seen in the case of think-tanks that effectively "breed" people of a particular mindset that can then be used in other policy contexts.

- **supportive environment**: fish tanks are necessarily supportive environments in which the occupants are typically nourished and cared for. This is also the case with the occupants of think-tanks -- whatever their ultimate fate. But as with fish, removing them from the tank can be fatal.

- **freedom of movement**: fish are usually provided with a reasonable degree of movement in aquaria, notably since it is their movement which ensures the fulfilment of their functions. Occupants of think-tanks also welcome the freedom of movement that the environment offers, whatever the constraints.

- **harmonious and congenial**: it serves little purpose to copulate an aquarium with fish that are radically deferent in disposition and have irreversible designs on each other. Predators and prey tend to be kept in different tanks, unless prey are deliberately available.
introduced for the purpose of nourishing the predators. Think-tank occupants are selected on a similar basis, namely for their complementarity, rather than for the propensity to attack each other. Those holding radically different perspectives usually gravitate to congenial settings in other think-tank environments.

- **transparency**: namely the suggestion that everything in the tank is transparent to outside view; there is also a suggestion that within the tank all activities by other inhabitants are visible. It is this zone of transparency which for those serving the intelligence services implies a common level of security clearance.

- **difference in medium**: a striking feature of aquaria is the contrast between the liquid medium within the tank and the medium that surrounds it (whether air or solid). This is also the case with think-tanks which provide an environment quite different from their surrounds. The difference may derive from the manner in which they visibly move according to the constraints of a contrasting medium -- the ability to hang around suspended in knowledge space. They have no need to be grounded as with other media.

- **movement**: the movement of fish is a prime reason for the existence of aquaria, whatever their function. Aquaria are valued for the calm associated with their rhythm of movement and its gracefulness as they weave their way through the decorative features of the tank environment inserted to make it visually interesting and to permit a modest degree of territorial behaviour. They represent an antithesis to stress. Think tanks are also the epitome of the notion of an intellectual "retreat", away from the stresses of normal environments. The occupants are not expected to move rapidly and tend to develop a rhythm which is significantly more meditative than the pace of external environments. They too may develop preferences for patterns of movement and locales within the shared conceptual space that they inhabit.

- **maintenance issues**: ensuring the stability of the fish tank environment is a major concern and calls for particular skills and care. Issues include food, cleaning, decorative features, accumulation of algae, use of complementary species (eg plants, cleaning snails), lighting, and oxygenation. They also involve the general management issues of population level, introduction and replacement of fish. These various concerns are also evident in the case of think-tanks. The environment of a think-tank can easily become problematic through the accumulation of unresolved issues and a lack of any sense of coherence in its functions.

- **diseases**: fish are subject to many diseases in an aquarium environment -- some of them fatal. Occupants of a think-tank are also vulnerable to what might be termed intellectual and behavioral diseases that call for remedial action.

- **oxygenation**: a key factor in the viability of a fish tank is the appropriate oxygenation of the water (whose circulation is assisted by the process). This is usually achieved through the aid of an external pumping device. Few fish tanks are self-oxygenating. Think tanks also require a form of oxygen supply (recognized by a French phrase manquer d'oxygène) that is used to describe any sense of intellectual "claustrophobia" or "asphyxia". Such "oxygene" must also then be fed into the think-tank from outside, since few think-tanks are independent in this respect.

- **productivity**: in aquaria with a decorative or auspicious purpose "productivity" is associated with moving elegantly to put on a show, suitably enhanced by occasional bubble production by the fish through the kind of mouth movement typical of goldfish. In think-tanks the "movement" takes the form of activity in seminars, whereas the "bubbles" are associated with production of ideas -- possibly to take the form of papers or studies. In both cases this activity tends to be viewed from outside a glass barrier. This "glass wall" suggests an intellectual equivalent to the "glass ceiling" that has proven to be the fundamental unstated obstacle to the integration of women into the top strategic and executive positions of institutions. This may suggest a fundamental unstated obstacle to the relevance of the "tank thoughts" produced within a "think-tank" to global governance of the real world.

A number of instructive approaches have been taken to simulating fish tanks:

- **computer screen savers**: simulations are ideal as calming screen savers
- **video**: extensive videos of fish tanks are available for those who do not wish to care for them [more]
- **toys**: a Japanese virtual pet (Tamagotchi) introduced in 1996 had considerable success as a means of teaching children the challenges of caring for its fish variant
- **models**: fish tanks lend themselves to computer modelling exercises, especially with respect to marine aquaria and breeding tanks

The construction of such models for fish tanks suggests the possibility of analogous models for think-tanks. The following report points in that direction:

We have developed a virtual fish tank in which computer users are represented by animated fish. The actions and interactions of the fish in the tank are meant to reflect the actions of users in the real world. Our first attempt at creating a programming environment that allowed people to customize their own fish did not work very well because users did not want to explicitly write programs to control their fish. Maintaining the fish tank metaphor, we attempted to solve this problem by having users teach fish rather than write code. We borrowed ideas from the literature on programming by demonstration and developed a method of programming by conditioning in which users demonstrate behaviors and also reward (or feed) fish that are behaving appropriately. Rewards give users the ability to define high-level behaviors (sets of specific movements) and complex relationships between situations and responses. [more]

The challenges for think-tanks, perceived in terms of the fish tank metaphor, are perhaps admirably captured by the following tale:

A prominent zoo had a highly specialized aquarium of which it was especially proud. Therein was a fish tank with an exceedingly rare species. The problem for the management was that, despite every form of precaution and costly expertise, the special fish remained morose and unmoving in their tank -- with the scales peeling in a manner clearly indicative of disease. By chance one day, a new tank cleaner -- unaware of the value of the fish -- scooped them into a neighbouring tank to enable theirs' to be cleaned. The second tank happened to contain a predator of those temporarily moved there -- forcing the displaced fish to move dramatically to protect themselves -- including setting up a small protective barrier of pebbles. The director of the aquarium
happened by an recognized that the problem of the special fish, in their beautifully designed environment, was that they were exposed to no meaningful level of challenge. He therefore arranged for a competing species to be placed in their tank with them. The new dynamics ensured that the special fish maintained a healthy tone and finally engaged in reproductive behavior.

**Battle tank**

The association of a "think-tank" and a "battle tank" is not new. Thus the US Center for Security Policy declares itself to be a non-profit, non-partisan organization that believes in the philosophy of American military might as the surest guarantee of international peace and security. Its 2001 annual report, says that the CSP "isn't just a 'think-tank' -- it's an agile, durable and highly effective 'main battle tank' in the war of ideas on national security." [more]. An interesting contrast is however offered by Chad Parmet: "The M1 Abrams is the antithesis of a think-tank; it is the nemesis of a thought. Tanks destroy things that think. Tanks are designed to homogenize the stuff inside skulls." [more]

Possible framing and conditioning effects of this metaphor then derive from:

- **cannon**: as its major weapon, this is the most obvious feature of a battle tank. It is designed to deliver high impact, highly destructive, charges over large distances. Status in battle tank operation is partly determined by the accuracy of targeting such shots. Curiously a think-tank may also be considered to have a "cannon" -- a canon of collected works, appropriately ordered to provide a context through which new works are projected into the world. Periodically a think-tank fires off reports and studies -- usually targeted to destroy any opposing intellectual structures and perspectives, possibly associated with some other think-tanks. Perhaps there is a case for reflecting on the possibly parallels between the skills of a "gunnery officer" of a battle tank and the guidance skills governing the use of the canon of works of the think-tank -- "cannon law"?

- **munitions**: a cannon can make use of a variety of munitions. An auxiliary cargo hold can hold a cobalt-nosed nuclear warhead. Much interest is currently focused on the efficacy and dangers of depleted uranium (DPU) "armour-piercing" shells. Think tanks also have at their disposal a variety of munitions.

- **machine guns**: battle tanks are also equipped with heavy caliber machine guns to threaten and destroy opponents encountered from other directions, or where the cannon is not appropriate. Occupants of think-tanks are also equipped to deal with smaller-scale opponents, without calling upon its cannon.

- **powerful engine**: battle tanks benefit from extremely powerful engines (up to 1500 horsepower) to ensure that they can surmount or crush any obstacle, as well as enabling them to move at speed (up to 60 kph). The power of think-tanks is usually measured by a combination of the intellectual caliber of the occupants and the budget (through which they are paid). Typically these far exceed, on a per capita basis, those of ordinary academic institutions.

- **armour**: battle tanks are typically heavily armoured to resist the attacks of opponents. Armour may be designed to ensure that incoming missiles are deflected. The armour may even be reactive, namely responding explosively to any armour piercing shell. Think tanks are also typically heavily armoured against missives from opposing perspectives. This intellectual armour may also be reactive -- responding explosively to any attempts to pierce it.

- **all-terrain**: a battle tank is designed to function in a wide variety of terrains, from desert to thick woodland, crossing rivers and gullies. Its treads are typically highly adaptable of the natural and built environments in which the tank is used. A think-tank typically prides itself on its ability to take on a task in any intellectual environment. Arguably the activities of a think-tank are highly destructive to the environments in which they are used.

- **use of weight**: a battle tank typically makes use of its own considerable weight to push down, or crush beneath its tracks, any opposition. Think tanks similarly take advantage of the intellectual weight they can bring to bear against opponents who may be either brushed aside or crushed in the process without any need to engage intellectually with them.

- **limited visibility**: due to the all-encompassing nature of their protective armour, battle tanks typically have limited visibility as well as a range of blindspots. They may have to rely on periscope-type viewers. Think tanks are similarly constrained by their protective armour and ma have a remarkably limited view of their environment. This may be tantamount to a form of tunnel vision.

- **limited maneuverability**: although battle tanks can orient their cannon in any direction, they can be severely constrained in their maneuverability, especially if they are moving at speed. They are especially handicapped in some terrains. Think tanks have similar constraints, notably if they have significant momentum in response to a particular objective. Just as battle tanks are severely handicapped in muddy, wetland environments, think-tanks are severely challenged by environments characterized by high emotions and "mud".

- **vulnerability**: typically battle tanks are vulnerable to more maneuverable and smaller opponents, if these are appropriately equipped. This vulnerability is also typical of think-tanks whose forces tend to be committed to particular objectives (contracts, or budget lines) and cannot be easily switched to other priorities. Their limited windows on the external environment, the tunnel vision to which this tends to commit them, offer considerable advantages to smaller opponents.

- **unhygienic**: battle tanks in hostile territory are notable for the challenges to hygiene within them (odours, sweat, urine, etc, possibly accompanied by blood) because of their insulation from the outside environment.

- **protection of infantry**: battle tanks are typically used to protect and facilitate advancing foot-soldiers. This is also the case with think-tanks whose advance is used to prepare the way for unprotected intellectual foot-soldiers equipped with lower caliber weapons.

- **transportation difficulties**: the size and weight of battle tanks makes their transportation to where they are needed highly problematic. This may require considerable delay. Transportation of think-tank capacity from one field of activity to another may be similarly problematic and demanding of time.

- **logistics**: battle tanks are highly dependent on their external supply lines for fuel and munitions which they tend to use in large quantities. Think tanks are similarly dependent on the continuing supply of funds from the external environment. Unlike battle
tanks, the munitions of think-tanks are not supplied ready made -- they have to be configured to a much higher degree within the think-tank from the raw data and intelligence obtained through appropriate supply lines.

- **all-male crew**: battle tanks are typically crewed by men only, the main historical exception having been in the Soviet tank corps (notably during the Battle of Kursk, 1943). Think tank occupants tend to be male, but with an increasing proportion of exceptions
- **filtration**: inadequate air filters cause battle tanks to be disabled, especially in desert conditions. In the case of think-tanks, it might be argued that think-tanks are disabled by intake of an excess of detail.

As suggested by the quote at the beginning of this section, there is an intimate relationship between battle tanks and think-tanks. Recommendations regarding the former may come from the latter. Given the above similarities, it is to be expected that the logic of battle tank strategy may also influence the mindsets of those in think-tanks. This raises the old question, if all one has is a hammer, do all problems look like nails?

**Reservoir tank (Gas tank, Water tank, Air tank)**

The notion of a gas tank -- as a source of fuel -- may have powerful associations for a think-tank seen as a source of intellectual power. Similarly, other forms of reservoir for water or air may be associated with vital resources of survival and nourishment important to the community which the think-tank serves. Much more pejoratively, such a reservoir may be seen as a source of "hot air". The gas tank metaphor has also been applied in motivation workshops with reference to "emotional tanks", namely the need to ensure the self-esteem of a group -- such as a think-tank.

Possible framing and conditioning effects of this metaphor then derive from:

- **storage**: clearly a gas tank is a container in which fuel can be stored for future use, as required. A think-tank can be similarly understood as a place where intellectual expertise is stored to fuel initiatives for the advances of knowledge, whether in anticipation of special needs or to deal with emergencies. It may be understood as a reservoir of ideas.
- **fuel supply**: a prime concern with a storage tank is that it should not be depleted -- "running out of gas", and "running on empty". This is a prime concern of think-tanks in relation to their funding and by extension to the quality of expertise they are able to retain. The intellectual resources of a think-tank can become so depleted that it can also be described as "running on empty". The notion of "fuel" applies also to water and air tanks necessary to the survival of a think-tank when understood as a biological organism
- **replenishment**: the reservoir association is especially relevant to think-tanks formulating policy for the Middle East when the countries in which they are based are dependent on that region as an oil reservoir. Just as they have to consider the "fuel" vital to their own institutional survival, so their mindset will be reflected onto their policy priorities with respect to oil.
- **tankers**: reservoirs tend to be replenished from larger tanks, or mobile tanks ("tankers"). Think tanks may similarly be dependent on sponsors (whether individuals or institutions) as a source of funding or intellectual resources
- **tanked up**: when the process of replenishing a reservoir is complete, the reservoir may be described as tanked up. This term can be applied to think-tanks, but more pejoratively to the people therein.

**Holding tank (Holding pen, Decompression tank, Cryogenic tank)**

Distinct from the notion of a reservoir as a source of vital reserves, is that of the holding tank as a transitional storage facility to allow adjustment with respect to the external environment to take place. Most common is the holding tank used for the detention of those arrested, prior to being interrogated, placed on remand, or sentenced. Think tanks may also be used as a holding facility for people who may be transferred to more active policy roles in government or alternatively as a graceful transition to retirement. The term holding "pen" is used in a similar way for animals (or humans so-defined). Think tanks may also be used to "pen" individuals with problematic views as a form of confinement in anticipation of disposing of them more permanently.

Decompression tanks are essential to the survival of divers moving from high pressure work (typically underwater) to normal environmental pressure -- in order to avoid the "bends" due to absorption of nitrogen by the blood. Think tanks may perform a similar function by providing an environment in which those working in high pressure institutional contexts can go to "unwind", perhaps before transferring to some "low pressure" context.

Cryogenic tanks are facilities in which human bodies are stored in frozen form after death in anticipation of technological breakthroughs permitting their resuscitation -- as a means of prolonging the life span of those with the resources to cover the cost of such storage. From this perspective a think-tank might be considered as an environment in which non-viable perspectives are conserved in anticipation of their revival. Pejoratively, a think-tank may also be seen, or used, as an environment to which the "brain dead" may retire (or be retired) in anticipation of a recovery of their creative capacities.

Possible framing and conditioning effects of this metaphor then derive from:

- **provisional character**: in contrast to the reservoir tank, there is a sense of anticipating a subsequent process. This is also the case with respect to think-tanks which are effectively being used to "park" people provisionally.
- **term**: again, in contrast to the reservoir tanks, the focus may be on how long people will be held, the length of their term "in the tank". For those "parked" in a think-tank, this concern may also predominate.
- **confinement**: there is a definite sense of constraint to a holding tank, whether imposed or voluntarily accepted for personal survival (as with the decompression and cryogenic tanks). Similarly people may be held within a think-tank by career and economic security priorities, or because their knowledge is dangerous to the outside environment or exposes them to retribution (as with certain defectors)
- **recaitarant**: a holding tank tends to be used in police facilities to allow problematic occupants to "cool off" and "come to their
senses”. Similarly problematic intellectuals may be transferred by their institutions to think-tanks to “cool off” before continuing their careers.

- **vociferous protest**: occupants of police holding tanks tend to be vociferous in objecting to their incarceration and in protesting their innocence. This results in a particular power dynamic with the responsible authority. Similarly intellectuals transferred to think-tanks may protest the injustice of their treatment by their former institution.

- **poor conditions**: typically holding tanks are not designed as congenial environments. Occupants may be exposed to other individuals they perceive to be particularly unsavoury with which they do not perceive themselves to be associated, and which they do not wish others to understand them to be associated. The conditions in some think-tanks may similarly not correspond to the sense of self worth of the occupants. Nor may they wish to be considered by their colleagues elsewhere as closely associated with others with whom they are obliged to share the facility

- **violence**: relations between occupants of a holding tank may be characterized by abuse, intimidation and even physical violence (including rape) to which the incarcerating authority may well be completely indifferent. The relations between occupants of a think-tank may also be characterized by abuse and intimidation, although any violence is liable to be structural rather than physical. Whilst physical rape may occur exceptionally in association with sexual harassment, it is conceptual “rape” which tends to be of greater concern. Typically such violence would be of little concern to the think-tank authority structure.

- **statements**: occupants of holding tanks are typically required to make signed statements following lengthy interrogation (often “under duress”) concerning the facts with which they are associated. The papers produced by occupants of a think-tank may also result from what amounts to interrogation by colleagues under a form of non-physical duress to clarify the appropriate selection and treatment of “facts” and the most appropriate conclusions to present for the judgement of superiors and the outside world.

### Septic tank (Wastewater disposal system)

Another common form of tank emphasizes the kind of independence often promoted in relation to think-tanks. In this case it is the “septic tank” vital to the wastewater disposal system of isolated dwellings that cannot be serviced by an urban sewage network [more; more; more]. The septic tank component is an enclosed watertight container designed to collect wastewater and segregate settleable solids from floating solids. Up to 50% of the solids retained in the tank decompose -- facilitated in unsanitary water treatment systems by reed beds. The remaining solids accumulate as sludge in the bottom of the tank and must be periodically removed. Such systems are common: one in four homes in the USA is on a septic system. Many think-tanks dealing with problematic consequences of policies can be considered to be processing the conceptual waste of social institutions. Individual think-tanks may be set up by institutions to this end — effectively as their conceptual “septic tanks”. In this respect it is amusing that think-tanks may well provide an environment for “septics”.

Possible framing and conditioning effects of this metaphor then derive from:

- **duration and exhausted life expectancy**: conventional septic systems are designed to operate over a specified period of time. At the end of the expected life span, replacement is generally necessary. Homeowners may be unaware of this issue or unable to afford a replacement. Well-built systems septic tanks can last 20 years or more when properly maintained. A think-tank producing conceptual models to reframe negative consequences of policies in a positive light, or recommend remedial programmes, can usefully be understood as having a limited life. No matter how well-designed the intellectual framework of the think-tank, it is likely to be overtaken by events and by the problematic consequences of policies to which it was designed to respond. Those responsible may be unaware of this issue. Typically a think-tank will respond to such conceptual failures by initiating new programmes and abandoning the old ones -- as is done with septic tanks.

- **pollution**: septic system failures are a major source of groundwater pollution, cause waterborne illnesses, such as dysentery and hepatitis, and are expensive for a homeowner to replace or repair. They can act as sources of nitrogen, phosphorus, organic matter, and bacterial and viral pathogens. Failure of think-tanks to generate remedial policies, or to contain a problem conceptually (if only by effectively denying it), is a major source of the “pollution” of social space -- allowing a sense of negativity to accumulate.

- **inadequate design**: perhaps the greatest design inadequacy in conventional septic systems is associated with failure to remove nitrogen effectively. In the case of think-tanks, the corresponding design failure may perhaps be associated with failure to deal effectively with processes of denial in responding to policy consequences.

- **inappropriate installation**: in the case of septic tanks, this often involves improper siting, including locating in areas with inadequate separation distances to ground water, inadequate absorption area, fractured bedrock, sandy soils (especially in coastal areas), inadequate soil permeability, or other conditions that prevent or do not allow adequate treatment of wastewater if not accounted for. In the case of think-tanks, siting is often such that it is very distant from the policy consequences that call for its attention. And, once engaged in the process, it may be sited in communication space such that its efforts merely pass on (back into society) a high proportion of that which it was purportedly designed to process transformatively.

- **neglectful operation**: in terms of system operation, as many as 75 percent of all septic tank system failures have been attributed to hydraulic overloading. Also, regular inspection and maintenance is necessary and often does not occur. Many of the problems associated with improper use of septic systems may be attributed to lack of user knowledge on operation and maintenance. Think tanks also typically fail through overloading which does not become apparent from appropriate inspection -- often because of ignorance in their management.

- **removal of sludge**: septic tanks require pumping to remove accumulating sludge approximately every 3 to 5 years. The frequency can vary depending on tank size, family size, and garbage disposal use. Failure to remove sludge periodically results in reduced tank settling capacity and eventual overloading of the soil absorption system, which is more expensive to remedy.

- **improper use**: septic tanks are vulnerable to improper use as a means of garbage disposal that can significantly increase the loading of suspended solids and nutrients, as well as increasing the buildup of solids in septic tanks, thus increasing the necessary
pumping frequency. ***

- **cleaners:** organic solvents are used as septic system cleaners and sometimes as substitutes for sludge pumping, however there is little evidence that such cleaners perform any of the advertised functions, and can instead exterminate useful microbes, resulting in increased discharge of pollutants. In addition, the chemicals themselves, halogenated and aromatic hydrocarbons, can easily contaminate receiving waters; common cleaner constituents may even be priority pollutants. ***

- **underground:** septic tanks tend to be buried underground to facilitate the drainage process from associated buildings. It is not clear whether some think-tanks are effectively "buried" in order to facilitate their processing of societal waste products.

- **odour:** well-maintained septic tanks are virtually odourless, especially if they are sealed. This is not the case if they are poorly maintained. Some think-tanks may be usefully recognized as having a severe "odour" problem.

**Sensory deprivation tank (Float tank)**

A sensory deprivation tank is an enclosed chamber in which the user lays in ten inches of water in which a large quantity of Epsom salts is dissolved so ensuring that the user floats like a cork. The chamber is sound proof, opaque, and both water and air are kept at skin temperature. The user's senses of sight, sound, and touch are eliminated and the senses of taste and smell become irrelevant. Over ninety-five percent of a person's mental activity is reportedly spent on interpreting information from these senses. Free of external stimulation, this mental capacity creates its own pictures and patterns -- enhancing the rich dream-like quality of the experience. Time seems to vanish. Such tanks are used for deep relaxation, meditation, self observation, prayer, creativity, visualization, solitude, rejuvenation, personal therapy, rest, and relaxation. This can produce a subtle shift in awareness away from the normally dominant "left-brain" thought patterns (logical, linear, analytical, detailed) towards the more intuitive, synthetic and large-scale thought modes of the "right-brain". The tank does not inhibit the left hemisphere, but simply changes its role from one of dominance to one of partnership with the other hemisphere, enabling floaters to use all their mental powers. [more; more]

Think tanks may be designed to severely reduce external input by emphasizing their isolation from the normal cares and concerns of the world. Such isolation permits the occupant to focus freely and creatively -- even speculatively. Free association with other occupants may be part of the pattern. The merits of "right-brain" modes of thought may be explicitly recognized. This aspect of think-tanks may be partly associated with that of an academic "retreat" involving a more relaxed approach to more profound or fundamental challenges.

Possible framing and conditioning effects of this metaphor then derive from:

- **fears of using:** many potential users fear exposure to the freedom of the float tank [more]. Similarly, in the case of think-tanks, academics may have considerable reluctance to exposing themselves to a supportive environment because of what it may make apparent regarding their capacities.

- **interrogation:** sensory deprivation is of course one of the techniques used in disorienting prisoners, whether for interrogation or "re-education". A think-tank might also be used to this end through the disorienting nature of a supportive environment free from external stimuli.

- **detachment:** a float tank is designed to sustain a sense of detachment. In the case of a think-tanks (as with their religious analogues), it is precisely this sense of detachment that may result in their being perceived as ill-informed, insensitive and irrelevant to the challenges of the real world.

**Cultivation tank (Breeding tank, Vat)**

Cultivation tanks are a characteristic feature of biotechnology and pharmaceutical technology, preceded by the processes through which yeast was cultivated for beer and bread. The term tends to be applied to vessels containing micro-organisms.

Breeding tanks are particularly used with respect to aquaculture and fisheries. Science fiction focuses especially on the use of such tanks to genetically modify and clone humans (as in the movie Matrix). Such fantastic scenarios can be usefully compared with the Nazi Lebensborn breeding houses where carefully selected teenage Aryan girls were matched with carefully selected young Aryan men (from the SS). As part of the eugenic programme to build up the Herrenvolk, it has been estimated that some 0.3 million children were kidnapped by the Nazis at birth throughout European countries and then given to "Good Nazis." After the war, a secretive organization of ex-SS men and Lebensborn breeders began searching for the children they made. [more; more]

It is worth considering the extent to which the contemporary concern with "centres of excellence", notably including think-tanks, is based on what might be considered memetic engineering, and a memetic equivalent of a eugenic programme (tentatively termed eumemics). In the case of think-tanks, much is made of their vital role in promoting the cross-fertilization of ideas and in cultivating excellence -- breeding a new generation of thinkers, etc. Such concerns are also associated with education of the super-gifted.

The associated notion of an "incubator" is extensively used with respect to business incubators of innovations -- possibly derived from think-tanks.

**Simulation tank (Simulators)**

Simulators are used for a wide variety of training purposes, typically to facilitate learning to handle a vehicle (airplane, automobile, helicopter, spacecraft, oil tanker, etc). Some of these are distributed as home computer games. For training purposes however, users are placed in a "simulation tank" in which information is fed to them via appropriate audio-visual devices. The tank as a whole may be moved by hydraulic rams to provide feedback on the nature of corrective measures to the challenge of driving / piloting the vehicle. Simulation tanks also exist to facilitate learning to drive a battle tank under hostile conditions -- although full size "simulation tanks" also exist in rubberized material as decoys.

Possible framing and conditioning effects of this metaphor then derive from:
• **adequacy of model**: the value of a simulator depends on the adequacy of the underlying model which simulates the reality with which the users must become familiar. Weak models fail to take account of real world situations which may prove disastrous to the unprepared user. Think tanks may be seen as operating within a model simulating external reality. Typically these would be of an econometric nature, perhaps extended to include dimensions from a variety of disciplines to constitute a world model. Policies can be generated in the light of such models which fail to address real world factors, possibly with the consequence that real world problems are exacerbated if the policy recommendations are implemented.

• **adequacy of computer support**: a complex model requires computers of adequate power to operate the simulation realistically. Think tanks may develop models that cannot be effectively run.

• "**Visibility**": as with a battle tank, a simulation may have relatively restricted view of the environment over which it must operate. Think tanks operating within particular models may have a similarly restricted view of their environments.

A think-tank may be understood to be a learning community whose activities can be facilitated and enhanced by interactive computer support. Although there is a Think Tank: Simulation Game to Promote Creative Thinking and a variety of "student think-tank simulations", there does not appear to be any effort to simulate the operation of a think-tank. However this may be considered a feature of the many groupware and collaborative software packages. But whether these effectively simulate a think-tank as a whole or merely the handling of a particular set of problems is another matter.

**Integrative perspective: configuring the set of tank metaphors**

(very tentative)

As an exercise it may be assumed that the individual tank metaphors identified above can be interrelated in a framework to highlight patterns of commonality and complementarity in think-tank operation.

There are 8 tank metaphors, so an attempt will be made to use the 8-fold binary coding system notably associated with the I Ching (see also Discovering richer patterns of comprehension to reframe polarization, 1998). This has the advantage of bringing to bear an inherently nonlinear system, emphasizing complementarity [more]. The following structure was explored for a related purpose (Alternation between Variable Geometries: a brokership style for the United Nations as a guarantee of its requisite variety, 1985)

<table>
<thead>
<tr>
<th>Significance by Level</th>
<th>Signifies:</th>
<th>Positive image</th>
<th>Signifies:</th>
<th>Negative image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner: Objectives, Principles, Worldviews, etc.</td>
<td>Consensus, unity, order, agreement, integration, co-ordination, solidarity, harmony, centralization</td>
<td>Excessive order, conformity, rigidity, monopoly, dogmatism, exclusiveness, intolerance, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle: Policies, Programmes, Procedures, Methodologies, Models, etc.</td>
<td>Diversity, creative variety, coexistence, cross-fertilization, mutual tolerance, exploration of alternatives, decentralization, etc.</td>
<td>Disagreement, fragmentation, chaos, dissent, revolt, duplication, dissipation of effort, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outer: Concrete actions, Institutions, Field level, etc.</td>
<td>Co-ordinated actions or institutional structures</td>
<td>Rigidly co-ordinated actions (intolerant of alternatives)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As a very tentative exercise in coding the various tank metaphors, this could give rise to a pattern like the following:

<table>
<thead>
<tr>
<th>Tank metaphor</th>
<th>Feature</th>
<th>Mobility</th>
<th>Trigram code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish / Aquarium</td>
<td>Auspicious display</td>
<td>Within</td>
<td></td>
</tr>
<tr>
<td>Battle tank</td>
<td>Frontline of conceptual defence</td>
<td>External</td>
<td></td>
</tr>
<tr>
<td>Septic tank</td>
<td>Problem-focused</td>
<td>Throughput</td>
<td></td>
</tr>
<tr>
<td>Holding tank</td>
<td>Transitional process</td>
<td>Throughput</td>
<td></td>
</tr>
<tr>
<td>Sensory deprivation tank</td>
<td>Reflective retreat</td>
<td>Within</td>
<td></td>
</tr>
<tr>
<td>Cultivation tank</td>
<td>Incubator</td>
<td>Emergent</td>
<td></td>
</tr>
</tbody>
</table>
As explored in the previous paper, the interplay between the various think-tank metaphors may now be explored.

<table>
<thead>
<tr>
<th>Reservoir tank</th>
<th>Reservoir of expertise</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulation tank</td>
<td>Scenario exploration</td>
<td>Virtual</td>
</tr>
</tbody>
</table>

**Towards a codification of variable institutional geometry**  
(with an indication of their positive and negative public images)

| + Creative diversity of actions derived from common policies and objectives  
- Inability to co-ordinate actions due to rigid policies and objectives | + Integrated objectives and policies implemented through an ordered framework of actions (world order)  
- Rigidly dictated pattern of objectives, policies and actions | + Co-ordinated policies and actions creatively based on fundamental differences in object.  
- Superficially co-ordinated policies and actions undermined by fundamental differences in object. |
|---|---|---|
| + Creative use of alternative models to interrelate common objectives and actions  
- Disagreement on policies undermining implementation of shared objectives | + Common policies inter-relating diverse objectives and actions  
- Consensus on policy concealing implications of fundamental differences in objectives and action. |
| + Diversity of policies and actions imbued by fundamental agreement on objectives  
- Inability to co-ordinate policies and actions despite fundamental agreement on objectives | + Decentralized institutional network with a variety of complementary objectives, policies and actions  
- Unco-ordinated, anarchic fragmentation and duplication |
| + Cross-fertilization of objectives and policies resulting in harmonious action  
- Minimal co-ordinated action resulting from fundamental differences in objectives and policies |

Each of the eight institutional configurations (A to H) is identified by a unique pattern of lines. An indication of the significance of the elements making up each pattern:

- continuous or broken lines
- outer, middle or inner position of a line in the pattern is given in the table above.

The arrows indicate transformation between patterns that involve the modification of one element of a pattern only, namely those changes which are probably more easy to bring about.

**Conclusion**

The prime characteristic common to all these variations on the use of the tank metaphor is that of a closed system. In each case the tank is a separator from the external world -- however the tank relates to that world. A tank is about as far from an open system (ecosystem) perspective that it is possible to get. Closed-system thinking reinforces binary thinking. Either one is operating within the tank environment or outside it -- and anything outside it can often be usefully perceived as a threat to the integrity of the think-tank environment.

This closed perspective is replicated in thinking that emerges from the think-tank mindset:

- gated communities
- group think
- fortress America
- nuclear shields
- "you are either with us or against us" (cf Afghanistan, Iraq)

Another interesting feature is the manner in which variety is excluded from a controlled system. In the case of think-tanks, dissent may be considered intellectually inappropriate. Like the religious orders, even networks of think-tanks may be distinguished by particular characteristics and interact with little enthusiasm.

Also interesting is the way in which tanks can be linked together in arrays or networks with appropriate communication systems. Variety is then achieved through separation into distinct tanks. In a sense the tank medium becomes the overriding closed-system message.
The replication of this pattern by think-tanks in society typically gives rise to networks of elite centres whose emergence individual think-tanks seek to facilitate -- as with the historical parallel of the networks of monasteries (ashrams, convents, etc) of religious orders.

Means are sought to facilitate movement between such centres in networks of excellence. Communication and "movement" between centres may become increasingly virtual. As with the religious orders, there is a real challenge to ensure appropriate contact with open society -- especially if there is no question of adopting a vow of poverty! One interface curiously, is through the use of public "seminars" -- not "ovulars" (as remarked by feminists) through which those in closed systems inanimate the wider world with their memes, possible via the use of missives (as missile substitues). From a biological perspective, these networks represent the emergence of the ganglia of primitive nervous systems (ganglionic networks) found in arthropods and other non-vertebrate groups. This perspective is important to ongoing explorations of the significance of a global brain (see for example Simulating a Global Brain: using networks of international organizations, world problems, strategies, and values. 2001)

The exercise in exploring the complementarity between the 8 different kinds of think-tank suggests that further exploration might lead to a richer understanding of think-tank potential in response to different challenges -- and notably in relation to the kind of thinking regarding global governance. Of particular relevance in relation to emergence of collective intelligence is the capacity of such a network of think-tanks to represent itself. Inability to do so in more than a directory listing is an indication of the failure of the self-representation process at a level below that normally considered a requirement for human intelligence.

Whether their occupants or clients desire it or not, will a "think-tank" then tend to produce "tank thoughts" -- "canned thoughts" from "canned thinkers" -- that are necessarily very much "in the box" rather than "out of the box"? Given the politico-economic realities of ensuring the viability of such vehicles of knowledge-making and their occupants, is the process of using them to be usefully thought of in the light of the 'rent-a-car' business model -- "rent-a-tank"? Is this not consistent with the marked 'rent-a-prof' tendency to fund researchers in support of particular commercial or political agendas? [more; more]

In response to the critical approach offered here, an immediate question might be what kind of metaphor would be more appropriate than a "tank" -- or could appropriately complement the "tank" metaphor. Aspects of this question have been explored in a separate paper (Renaissance Zones: experimenting with the intentional significance of the Damanhur community, 2003). The kind of possibility to be considered is, for example, a "knowledge garden" -- in that it offers a richer panoply of approaches to considering and elaborating knowledge ecosystems. Aspects of this metaphor have been explored elsewhere (see Knowledge Gardening through Music: patterns of coherence for future African management as an alternative to Project Logic, 2000). This effectively associates "think-tank" conceptualization with "Project Logic" as having been proven to be inappropriate to the conditions of cultures such as those in Africa. But perhaps "knowledge oasis" might be even more appropriate for the Arab world. The contrast between a "tank" and an "oasis" stresses many useful points in relation to thinking regarding sustainable development -- especially at a time when pumping oil into tanks in the desert has become such a focus. With the emergence of interest in "knowledge ecosystems" pioneered by George Por, another interesting possibility is the use of "knowledge ecostery" to reflect a greater sensitivity to relationship to the environment.

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