

# A Layered Approach to Horizon Scanning: Identifying Future Issues in Military and Veterans' Health<sup>1</sup>

Jane Palmer (Research Consultant, Institute for Sustainable Futures,  
University of Technology Sydney  
Australia

Professor Niki Ellis, Director, Centre for Military and Veterans' Health,  
University of Queensland  
Australia,

## Abstract

*The Centre for Military and Veterans Health, Australia undertook a horizon scanning process to identify issues in military and veterans' health services delivery for a series of future scenario workshops. Existing writings on global trends, health, military and veterans issues were tabulated using three levels of Causal Layered Analysis (litany, system, worldview) (Inayatullah 2007) in combination with the Push (trends)-Pull (preferred futures)-Weight (history) triangle (Inayatullah 2007). Contradictions and synergies identified by scanning factors within and between levels produced a set of plausible future issues. Tagging all factors enabled a quick-scan process across all levels to revise or confirm each issue description.*

**Key words:** Causal Layered Analysis, horizon scanning, futures methodology, health futures, military and veterans health<sup>1</sup>

---

## Introduction

The Centre for Military and Veterans' Health (CMVH) has three functions, research, professional development and public advocacy, through its Think Tank. In 2007 the Think Tank established a two-year program of work on futures in the area of military and veterans' health service delivery.

The program is planned to have the following components:

- A) Preliminary horizon scanning by CMVH and identification of potential areas of interest
- B) Consultation with senior thought leaders in the Departments of Defence and Veterans' Affairs, other government departments, non-Government organisations (NGOs), and organisations in the private sector with either an interest in defence or health or both to establish specific areas of interest for an ideas development process
- C) Open-ended ideas development in a wider forum (breakfast/lunch-time series of talks and discussion)
- D) A major Think Tank event to identify priority issues for planning and action.

## Objectives for the Think Tank Program on the future of military and veterans' health service delivery

1. Describe the likely future 2020 environments in which the Australian military and veterans' health services delivery will occur.
2. Describe what health services delivery would look like in these alternative environments.
3. Determine the impacts on research and skills enhancement needs for future health services delivery, for use in planning research and professional development programs
4. Establish a mechanism for ongoing horizon scanning with regard to health and health services by CMVH in partnership with other organizations.

## Approach to horizon scanning

*"To operate in an uncertain world, people needed to be able to reperceive – to question their assumptions about the way the world works, so that they could see the world more clearly"* (Schwartz, 1991, 1996, p.9)

We looked at work by a number of futures theorists in considering how best to approach the horizon scanning process. The transdisciplinary enterprise of bringing together factors affecting both military futures and health futures (including social, geopolitical, environmental, economic and technological factors), meant that any horizon scanning needed to be ordered and layered in a way that allowed the synergy between all of these factors to become visible.

'STEEP' categories

One type of order which could obviously be imposed on the data we collected was the 'STEEP' categories – Social, Technological/Scientific, Environmental, Economic and Political (Morrison 1991). In addition, however, we needed to include specifically military-, veterans- and health-related factors. A combination of these categories (STEEP-plus) became our starting point.

Types of futures studies

As our review of futures work progressed, it became apparent that there were 3 main strands of futures thinking, described by Richard Slaughter (2002):

Commented [u1]: What level is it in this article? HEADING 2

- Forecasting (predicting)
- Scenarios
- Critical futures studies.

We found forecasting and scenarios to be complementary and defined our two options as forecasting, including scenarios and critical futures studies.

#### *Forecasting, including scenarios*

One major criticism of the process of projecting trends into the future is that it avoids addressing the fundamental causes of our problems. Slaughter suggests that ‘forecasting’ or ‘predicting’ now has very little to offer us about how we should solve problems facing mankind: “Such questions are bound up with complex social and human issues, but forecasting is silent when confronted with the human predicament” (Slaughter, 2002, p. 27).

*“Instead of future facts (trends or emerging issues), what is needed are new, culturally self-aware interpretations of the future”* (Inayatullah, 1990, p. 122)

Neither does the development of future scenarios necessarily ensure the most open approach to imagining possible futures. As Slaughter points out, standard approaches to scenario building accept current social reality as unproblematic, and bear little or no relationship to broader frameworks of understanding (Slaughter 2002, 28).

*“Many future scenarios skate around the (empirical) surface but fail to deal in depth with the problematics of people, organisations, cultures in stress and transformation”* (Slaughter 2002: 29).

Thus in planning for market growth, for example, an organisation needs to look not just at scenarios which project greater or smaller numbers, but at its whole understanding of what it means by ‘growth’ (Inayatullah 1990: 123),

*“...most decision makers at all levels simply want information that can justify their pre-understandings of past, present and future ...*

*“The most significant contribution of emerging issues analysis is... the unthinkable calling into question the normal”* (Inayatullah 1990: 120)

Futurist Peter Schwartz works with scenarios to encourage people to examine their assumptions about the future. In *The Art of the Long View* he remarks that “people at resilient companies continually hold strategic conversations about the future” (Schwartz 1991,1996).

Important factors in designing a strategic conversation process include:

- Begin by looking at the present and the past
- Evade the ‘Official Future’ in organisational identity

(Schwartz 1991, 1996).

#### *Critical Futures Studies*

*...”a futures method...should not merely be seen as a predictive method; it can also be seen as a critical one”* (Inayatullah 1998: 4).

Critical futures study is based on the view that “personal, organisational and cultural worldviews...give rise to the humanly constructed external world” (Slaughter 2002: 29) and that ‘disciplinary maturity’ for futures practitioners lies in addressing the issue of how we gain

clarity about our current reality so that more options can be seen for the future (Slaughter 2002: 29).

The job of the futurist in this view is to make the way we do things now remarkable rather than 'normal', and reveal the reasons it has come to be this way (Inayatullah 1990: 129). This is the 'distancing' process which enables us to look anew at the present. Future scenario writing can help provide this distancing from the present, provided the scenarios do not simply use the same categories and structures which exist today.

Inayatullah developed Slaughter's approach into a methodology for futures study (Inayatullah 1990 and 2007). Causal Layered Analysis is a layered approach which allows us to look at what is happening at a number of levels:

- Events, lists of reported 'facts', or statistics (*litany*)
- Economic, political and historical *systemic causes*
- Ethical and political views and the resulting structures (*worldviews*)
- Deeply held myths and archetypes (*metaphor*).

### Methodological approach to the Think Tank program

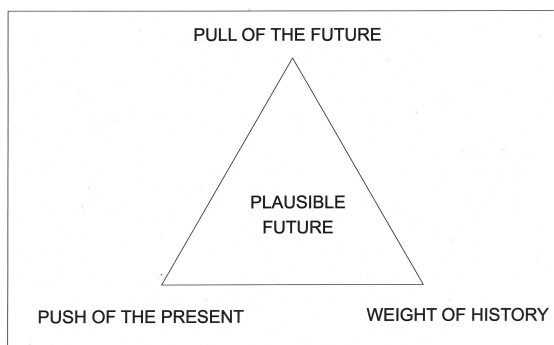
In undertaking the horizon scanning process for the Think Tank, we realised we needed an approach which would assist us in critically reviewing the information we collected and allowed us to identify critical issues for the future. In particular, identifying areas of contradiction, synergy, disconnectedness or connection between the various factors would enable us to see which areas should be the focus of attention by the Think Tank.

Early in the data gathering process, and with a Critical Futures Study framework in mind, we looked at what kind of information was going to be most useful to scan.

The 'Push-Weight-Pull' triangle used by Inayatullah (2007) makes clear that futures are influenced by more than just the trajectory of existing trends:

- *Push* is the trends and wildcards which will push us into the future
- *Weight* is the way things have been historically up to now
- *Pull* is our preferred futures which are pulling us forward.

Figure 1. The Push-Weight-Pull Triangle



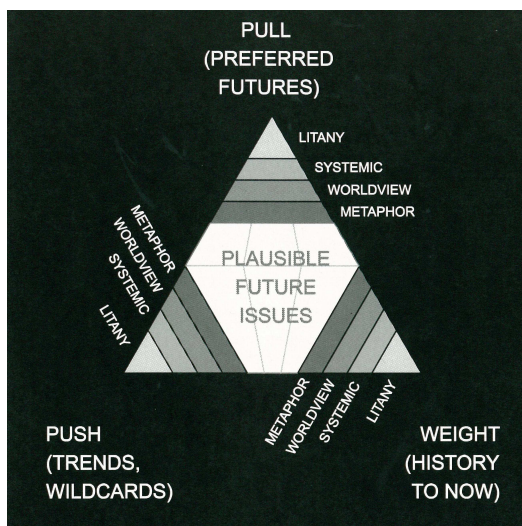
Note: from Inayatullah (2007)

This triangle indicated that the material we needed to be collecting and reviewing (scanning) should not just be about the future, but also about the present and past, and about the preferred futures of the stakeholders.

In addition, Causal Layered Analysis (CLA) potentially presented a layered way of ordering the information, in a way which would allow us to see contradictions and synergies between *worldviews*, between *systemic factors* and underlying *metaphors*, and within the surface *litany*. The comparisons drawn at each level and across levels would be invaluable in gaining a clearer perspective and better description of the issues.

For the purpose of horizon scanning for critical issues, we combined the *Push-Weight-Pull* triangle with the deeper layers proposed by Causal Layered Analysis. The 'outcomes' in the centre thus became 'Plausible Future Issues' rather than 'Plausible Futures':

Figure 2. Push-Weight-Pull triangle of factors in futures analysis



Note:

Commented [u2]: Could you provide the authors' names, year, page number here?

### Collecting and sorting the data

In our information collecting process therefore, we looked not just at trends (*Push*) but at how the stakeholders saw their preferred futures (*Pull*), and the present or historically given situation (*Weight*).

Over several weeks we collected information from major relevant journals, annual reports, research reports, newspaper articles, written by academics, journalists and other professional analysts on:

- Global future trends and wildcards (social, technological, economic, environmental and political (STEEP)), health futures, military futures and veterans' futures (the *Push* factors)
- Where we are now in health, military and veterans issues (the *Weight* factors)

- Preferred futures in health, military and veterans issues (the *Pull* factors)

In all 75 documents were collected and a content analysis was undertaken for any information on global (social, technological, economic, environmental or political), military and health trends; either predicted trends (push), current trends (weight) or preferred future trends (pull). Each piece of trend information identified in the documents is referred to as a factor. A full listing of sources and a description of the content analysis is available elsewhere (CMVH, 2007).

The factors we had assembled were tabulated within the *Push-Weight-Pull* groupings, by Causal Layered Analysis level – *Litany*, *Worldview*, *Systemic Causes* (the *Metaphor* level was not used at this stage), and within the ‘STEEP-plus’ categories. A representation of this tabulation is shown in Figure 3 below.

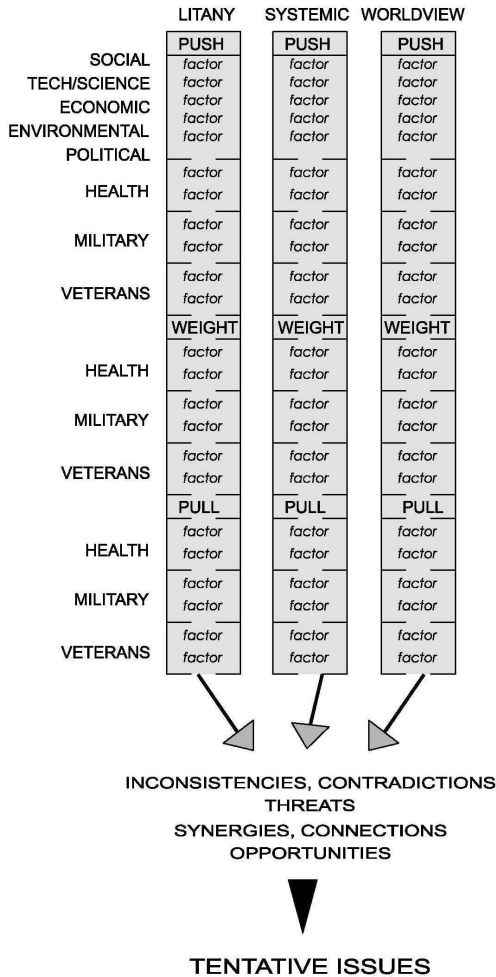
### **First analysis of the data for possible future issues**

Once the factors were tabulated it was possible to scan within and across the CLA levels to look for areas where there was either a significant conflict or strong synergy between the factors in the various cells. For example, conflicts or disconnects were obvious between future technology (*Litany*) and likely technology literacy (*Systemic Causes*), rising health costs (*Litany* and *Systemic Causes*) and the priority given to prevention (*Worldview*), resource or health workforce shortages (*Systemic Causes*) and rising demand (*Litany*). Strong mutual reinforcements were noted between rising concern with post-deployment quality of life and health costs (*Worldview* and *Systemic Causes*) and increasing focus on surveillance and early intervention (*Systemic Causes*), and between Australia’s increasing commitment to international security agreements (*Worldview*) and greater focus on training for interoperability (*Systemic Causes*).

As a result of this comparison process, a tentative list of futures issues for Think Tank focus were drawn up for further review and verification.

*Figure 3.* Mapping the data and first analysis

## HORIZON SCANNING FACTORS



Note: |

### Analysis check – issues shake-down

Each factor listed in the table (Figure 3) was then tagged to identify it as belonging at least primarily to one of the tentative issues. All the factors were then re-sorted by issue, so that *Push-Pull-Weight*, *Litany*, *Systemic Causes*, *Worldview*, social, technological or scientific, economic, environmental, political, military, veterans and health factors were listed simply in one long list under the relevant issue heading. This ‘issues shakedown’ process is outlined in Figure 4. It allowed a quick scan across all categories to see whether any anomalies appeared in the list of factors under each issue.

As a result of the ‘shake-down’, two of the issues collapsed into one (the lists of factors

**Commented [u3]:** Then could you provide the authors’ names , year, page number here?

**Commented [u4]:** Source please if it is cited from others? NOTE: THIS IS AN ORIGINAL DIAGRAM BY THE AUTHORS





Procurement, training and strategy are also areas where input from health providers would assist in assessing and managing health implications.

### **1B Future technology literacy.**

There has been criticism of all governments that they have low scientific literacy, a lack of understanding of its role in policy and lack of commitment to technology adoption. Health providers in particular need a proactive horizon scanning approach to new technology, changing environmental threats, new diseases and their impact on delivery of health services.

## *2 New models of health care*

### **2A Coordination and collaboration with other agencies.**

In view of limited funding, rising costs of health (see 2D below), trends towards new models of delivery (see 2E and 2F below) and new future working environments (see 5A and 5B below), there will be pressure to work more cost-effectively with other government and non-government agencies including health providers, educators and trainers, aid agencies, in providing prevention and treatment health services.

### **2B Quality.**

There is worldwide inconsistency in treatment and prevention programs, and currently only limited monitoring, feedback and review.

Changes in models of service delivery, including more consumer responsibility (see 2F below), changing health roles of personnel (2E below), use of new technologies will require a greater focus on quality criteria, monitoring and review systems.

### **2C Communications and information.**

Communications and information technology is changing more rapidly and globally than almost any other area of technology. It will catalyse paradigm shifts in education, information dissemination including health records and public health information. It will also have a huge impact on how health services operate in the field, in access to patient information, supplies, transport and provision of advice and counselling.

Health providers need to be constantly assessing available technologies and having input to service- wide or departmental-wide decisions on technology, training and infrastructure

### **2D Funding – ‘more bang for the buck.**

Rising costs associated with new diagnostics, pharmogenomics and other new procedures, combined with costs of an ageing population and potentially fierce competition for scarce resources will mean service-wide, departmental-wide and whole-of-government review of cost-effectiveness and new models of health service delivery. Spending on public health and prevention is currently only a very small part of government budgets. The balance between expenditure on prevention and illness is likely to be drastically reviewed in the future.

### **2E New health roles.**

The silos of current health professionals are already being broken down, despite strong professional resistance. In the future, it is likely that increased customer focus and customer responsibility will result in ‘blended’ health systems with new jobs as ‘gatekeepers’ of quality, advocates for local health services, and in research interpretation, health service brokerage.

This will also change education and training programs to cross professional boundaries and increase emphasis on customer interface.

### **2F Consumer focus, consumer responsibility.**

More educated consumers demanding ‘value for money, more consumer driven health

plans, community-run health centres, an emphasis on wellness rather than illness, personalised genotechnology programs, and cost-shifting from stretched government health budgets to individuals are all likely futures. Quality (of treatments, information) will become an important issue (see 2B above)

The planning and design of future prevention and treatment programs, customer interface eg with clinicians and hospital administration, information and education programs will be radically different from current arrangements.

### *3 Health Workforce*

#### **3A Recruitment shortages.**

Changing demographics in developed countries will mean severe shortages of skilled workers in-country, and fierce competition for a global labour force. There are already severe shortages of nurses and doctors in Australia.

The 'war for talent' will mean mass movement of labour between nations both to take up jobs and to obtain training and education offered by developed countries.

Employment conditions, organisational image, and cross cultural acceptance are all likely to be important issues.

#### **3B Training (for interoperability, new technologies, roles and environments).**

New security and training alliances are constantly being formed and Australia is increasingly seeking joint training with the US, Indonesia and other countries.

Other factors in future training include the likely impact of nanotechnology on military and medical practice, the increasing demand from the workforce for personal development and training, future changes in clinical roles and the many roles performed by one person during a complex deployment, new more threatening environments, more environmental regulation of activities, more cross-cultural environments and the role of e-learning (see 2C above).

#### **3C Retention (morale, team-building and employment conditions).**

There has been criticism of the ADF regarding its 'psychological contract' with its personnel, organisational morale, the change by its workforce to situational, short-term commitment with a view to transferring quickly to the civilian sector, and the changes needed for the ADF to be seen as an 'employer of choice'.

The health workforce in general has been described as depleted and demoralised. These broader issues will also have an increasing impact on military and veterans' health providers in the future.

### *4 Pre-empting illness*

#### **4A Surveillance, hazard profiling and early intervention.**

Potential future funding limitations (see 2D above) on long-term care and reports on diminished post-deployment quality of life have resulted in recommendations for hazard profiling of each deployment and better health surveillance of ADF personnel and veterans at transition from the ADF to allow for early intervention in any likely health condition. Mental health and chronic pain are examples of areas where systematic approaches to pre-emption could reduce long-term health consequences for serving and former ADF members.

#### **4B Support at home (social/community/family).**

The Department of Veterans Affairs is increasing its focus on family and community support for veterans. Statistics show that there is a direct correlation between community and family support and positive health outcomes for veterans, and that many veterans have

reduced quality of life post-deployment.

At present there is a disconnect between nongovernment organisations serving veterans, and the younger generation of former servicemen and women (from Vietnam onwards) who do not identify with WW2 veterans. There may also be unintended consequences of contact with families while on deployment which have not been examined (for example the fracturing of roles resulting from contact with family during stressful deployments).

#### *5 Future Operating Environments*

##### **5A Global resource shortages and infrastructure shut-downs.**

The forecasts for environmental and social conditions in the near future indicate potential serious shortages of resources, including energy, water, and metals needed for pharmaceuticals, machinery and infrastructure.

Shortages and shut-downs are likely to increase the pressure on delivery of health services both on overseas deployments and in Australia. A vigilant horizon scanning process needs to be in place to anticipate shortages and to investigate alternatives (see 1B above).

##### **5B International interoperability.**

Australia is increasingly engaging in formal security and training agreements with countries such as the US and Indonesia, and sees part of its future military role in joint operations overseas. It is likely to become increasingly interdependent with other nations economically and politically.

As the ADF moves to greater interoperability in terms of equipment, communications and training, its health services will also need to be able to operate jointly with other nations' health services, in terms of command, equipment, clinical practice, education and training and health promotion. This is likely to have cost-saving as well as efficiency and humanitarian advantages.

#### **Testing possible future issues**

The Think Tank Steering Committee, comprising representatives from CMVH and representatives from the military and veterans' health sector, at its subsequent meeting considered the list of fifteen issues generated by the horizon scanning process, in the form of a draft Discussion Paper.

There was strong agreement that all of the issues were priorities for consideration in a futures process, and that there were no significant omissions. After some further discussion however, it was agreed that one more issue could be identified separately within the area of 'New Models of Health Care'. This became issue 2G:

##### **'2G Mandating health choices and standards.**

Escalating funding shortages and insurance costs will drive the emphasis on wellness rather than illness, and an array of requirements and incentives for standardised, quality compliant health services and risk reduction/preventive health strategies.

Incentives and mandated requirements will apply to both the health services offered by providers and the health choices of consumers'.

Further circulation of the Discussion Paper for comment within the military and veterans' community, the wider health community and among other government and non-government organisations indicates that the issues list is credible and useful.

## Repeatability of the process

The three stage process described above (collection of and identification of factors from data, first analysis for tentative issues and second analysis, the shake-down of issues to generate possible future issues) relies on a synthesis of Causal Layered Analysis levels, the *Push-Pull-Weight* triangle, and the 'STEEP-plus' categories. Such a synthesis could prove useful for horizon scanning in other areas, especially where the factors are likely to cross many disciplines and sectors, and operate at different levels of influence. The matrix of categories not only reduces a polyglot of information to manageable portions, but it also facilitates identification of the issues and enriches their descriptions – descriptions of conflicts and synergies within and across *Systemic Causes*, *Worldviews* and 'the base data' (*Litany*).

The factor-tagging 'shake-down' acts as a check in the process. Removing categories to scan a list of factors without paying attention to future or present, political, economic or technological categories, or whether a factor reflects a *Worldview* or a *Systemic Cause*, is a 'fresh look' at the factors and a way of detecting anomalies without other intellectual distraction. Again, this check process could be usefully applied wherever the list of factors is complex, multi-layered, multi-disciplinary and trans-sectoral.

## Lessons learned

### *Framework for collecting and analysing data*

The more time and resources available the greater the breadth of information gathered and the less likelihood of concern about omissions. More importantly, adopting a taxonomy early in the process for sorting and analysing the information assisted greatly in ensuring that data was collected across a range of categories (STEEP-plus), and within at least the first three levels of the Causal Layered Analysis model (*Litany*, *Systemic Causes* and *Worldviews*). Data (factors) collected from the source documents before this taxonomy was finalised tended to fall into a few categories only; later data collection became more systematic and more efficient. Once the factors had been sorted into the initial table the inconsistencies, contradictions, synergies, connections and threats and opportunities were quite easy to see. This helped in the identification of the list of possible future issues. The end point of the first stage of analysis.

### *'Factor-tagging'*

The second stage of analysis is a check process (the issues shake-down) and requires a re-sorting of the factors with a tagging decision, which allocates each factor to one of the issues identified in the first analysis. The lists of factors thus generated under each tentative 'issue' might be more informative if the tagging occurred at, say, two levels – a primary level which is the main issue with which the factor is identified, and a secondary level which allocates the factor also, but less strongly, to another issue. The factor lists thus generated would make it easier to compare the claims of issues to significance – an issue with a very large number of secondary factors but few primary factors could be as significant (possibly as an emerging issue) as one with a larger number of primary factors and few secondary factors.

### *Process or product?*

It would be interesting to test the horizon scanning process described in this paper by separating the 'cataloguer' from the 'reviewer'. The very process of collecting and cataloguing creates familiarity with the data (the 'factors'). Perhaps it is this familiarity, rather than the particular taxonomy and its outputs, which enables us to identify emerging issues; if

this were the case, one form of arranging the data might be just as effective as any other.

In a future case, if the data were collected and catalogued by one person and presented 'as new' to another for review and identification of issues, we would be able to test the usefulness of the taxonomy proposed above as an aid to seeing anomalies, contradictions and synergies, and hence identifying important issues.

It is also possible that the process of familiarisation with the data is more effective with one taxonomy than another – the quality of familiarity may be a critical factor and one which is in part determined by the operations performed on the data eg whether the taxonomy is layered in a way which requires the cataloguer to consider and assess data items in a certain way (as a statistic or a worldview or a systemic feature).

## **Conclusion**

The layered approach to futures study proposed by Inayatullah in the process of Causal Layered Analysis can usefully be applied to the preliminary activities of horizon scanning and issue identification. Along with the *Push-Pull-Weight* categories representing trends, preferred futures and history, and the STEEP categories (social, technological, environmental, economic and political), it provides a guide for data collection, increasing the likelihood of a set of data which is reasonably representative and ranges from 'bigger picture' worldviews to the litany of published facts and figures.

Such a 'taxonomy' also assists in comparing information within levels and across levels, to find connections and contradictions which give rise to the critical issues requiring consideration. The checking process, which lists the data by issue without regard to levels and categories provides a 'second glance' and a second chance to identify anomalies, additional issues or overlapping issues.

While the data collected remains necessarily incomplete, and the reviewing and issue identification a fallibly human process, the responses from stakeholders to the list of issues generated above suggests that the process would be worthy of consideration for application in other complex or transdisciplinary areas of futures study .

## Correspondence:

Jane Palmer, BA(Hons) (UQld), BSc(Arch) (USyd), BArch(Hons) (UNcle)

Email: [janepalmer@fnq.net.au](mailto:janepalmer@fnq.net.au)

Institute for Sustainable Futures,  
University of Technology Sydney  
PO Box 123 Broadway NSW 2007  
Australia

Niki Ellis, MBBS (UTas), FAFOEM, FAFPHM

Email: [n.ellis@uq.edu.au](mailto:n.ellis@uq.edu.au)

Telephone: +61 7 33464873

Centre for Military and Veterans' Health,  
University of Queensland,  
Mayne Medical School  
Herston Road  
Herston, QLD, 4006  
Australia

## Notes

Financial support was provided by the Centre for Military and Veterans' Health (CMVH) at the University of Queensland. CMVH is a joint initiative of The University of Queensland, the University of Adelaide and Charles Darwin University, Australia. CMVH receives funding from the Commonwealth Government's Departments of Defence and Veterans' Affairs.

## References

- Centre for Military and Veterans' Health Think Tank Program. (2007). The Future of Military and Veterans' Health Service Delivery: Discussion Paper. Retrieved December, 1, 2007 from [http://www.uq.edu.au/cmvh/docs/ThinkTank/CMVH\\_2007\\_TT\\_Discussion\\_Paper\\_webupload.pdf](http://www.uq.edu.au/cmvh/docs/ThinkTank/CMVH_2007_TT_Discussion_Paper_webupload.pdf)
- Inayatullah, Sohail. (1990). Deconstructing and Reconstructing the Future: Predictive, Cultural and Critical Epistemologies, *Futures*, 22(2), 115-141
- Inayatullah, Sohail. (2007). Futures Thinking for Transforming, 8 August 2007 (received by email)
- Morrison, James L. (1991). Environmental Scanning. In M.A. Whitely, J.D. Porter, & R.H. Fenske (Eds.), *A primer for new institutional researchers*. Tallahassee, FL.: The Association for Institutional Research.
- Schwartz, Peter. (1991, 1996). *The Art of the Long View: Planning for the Future in an Uncertain World*. Chichester: John Wiley and Sons
- Slaughter, Richard A. (2002). From forecasting and scenarios to social construction: changing methodological paradigms in futures studies. *Foresight: the Journal for Future Studies Strategic Thinking and Policy*, 4(3), 26-31

**Commented [u7]:** Full names please. HAVE SEARCHED ALL POSSIBLE SOURCES, INCLUDING OTHER PUBLICATIONS AND NO FIRST NAMES AVAILABLE

---

