

Futurewatch

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An information service of current international perspectives on our futures, prepared by futures scanner, **Jennifer Coote**. Annual dates as last two digits.

EDUCATION

The Mental Wealth of Nations

The UK Office for Science released, October 08, the **Foresight Project on Mental Health and Well-being**, reported by **J. Beddington et al**, *Nature*, 23 Oct, 08. This peer-reviewed research from over four hundred experts assesses the challenges to human mental development from pre-natal to death. The findings can apply to other countries as well as in the UK. It examines two intertwined aspects, mental capital and mental well-being, and how they are affected positively and negatively through the human life-span. How the nation develops and uses the mental capital of its citizens affects its economic prosperity as well as its social cohesion and the mental health of all. The close linkages of the two key aspects should therefore be crucial in policy development and design of interventions.

There is huge scope for improving human mental capital through different types of intervention, since genetic endowment contributes barely 50%. It is now possible, using neural markers, to identify learning difficulties in infancy. The early detection of mental disorders can be greatly improved, facilitating better treatments. Lifelong learning is not only possible, it has positive advantages for older people. Workers' mental well-being is now an important factor in an effective workplace.

Four important resources from OECD: - **Trends Shaping Education: 2008 Edition OECD Center for Educational Research and Innovation**, Aug 08, covers ageing societies, global challenges, new economic landscapes, changing world of work and jobs, the learning society, ICT-the next generation, citizenship and the state, social connections and values and sustainable affluence, with a final section of challenging questions.

Education at a Glance, OECD Indicators, OECD, Sept 08, is a mine of data, with analysis of 28 indicators in four sections.

Tertiary Education for the Knowledge Society, Vol. 1, Governance, Funding, Quality. P Santiago et al, Vol. 2, Equity, Innovation, Labour Market, Internationalisation, OECD Sept 08. These comprehensive examinations draw on OECD reviews from some 24 nations including China and Russia, but not USA.

Understanding the Brain: The Birth of a Learning Science, OECD Centre for Educational Research and Innovation, Sept 07. This synthesises current findings: educational neuroscience is generating valuable new knowledge; it provides important evidence to support lifelong learning, insights on adolescence are especially important; timing and periodicity need consideration; and the potential of brain imaging could have very far-reaching consequences for education.

To Begin With

The Sandbox Investment: The Preschool Movement and Kid-First Politics, D. L. Kirp, Harvard Univ. Press, 07. The mounting support from the US middle classes for quality preschool education was stimulated by the success of Head Start for poorer children, by Sure Start in UK, and by powerful research findings from several sources including neuroscience, with data which shows convincingly, that early education matters. But of what kind?

In School

The Race Between Education and Technology, C. Goldin, L. F. Katz, Bellnap (Harvard Univ.) Press, 08, takes a look at recent educational/economic change through an historical lens. This shows that although technological change may be a source of growing inequality, it is more likely to be so if there is an insufficient supply of highly skilled users for the new technologies. The surprising stagnation in US educational levels in the past three decades is a root cause of inequality. US technological leadership is at risk unless more students are college-ready and can access higher education.

W. Lutz et al, *Science*, 22 February 08, go deeper into the statistical analysis between economic growth and educational attainment. Educational effects for a poor developing country show that increasing primary levels result in slow economic growth, and that the more secondary and some tertiary level education is achieved, the faster the growth. More elitist distributions, where almost half the population has no education and the rest have a mix of levels, reduces the level of economic growth.

Population academic **J. Cohen**, *Nature*, 4 December 08, pp.572-573, argues that a push to make secondary education for all worldwide over the next 25 years is not only achievable, it will have substantial effects on population stabilisation by 2050.

Univ. Waikato education Professor **M. Thrupp**, *Waikato Journal of Education* 13/07, examines developments in educational policy and practice which leads to greater social inequality, and how educational practitioners may be contributing to this. Education has long been geared to middle-class interests, and the inconvenient truth of this advantage is masked by discourses on school leadership, teacher quality etc. Recent studies in education internationally are focusing on this dynamic. In New Zealand the middle class is more likely to be Pakeha and Asian. For Maori and Pacific Island students, the social and ethnic aspects count. The persistent, class-based advantage shows in the family resources, including housing and in the skill levels in the school governance system and zoning, in the curricula biases, in resistance to more formative approaches to assessment, and to the support for commodifying through testing and setting targets. Teachers may perpetuate the advantage, since many are middle class themselves. The lowest decile schools have the highest ratios of staff

turnover. Reining in this advantage requires increased focus on the inequalities and their causes, with less distraction into testing etc, much more quality resources for low decile schools, and opening up an honest debate about the real costs of an almost segregated education system.

Educational Leadership, April 08, **P. Gorski** challenges the myth of "the culture of poverty" which teachers should question. This paradigm assumes that the poor share a persistent and observable culture, where parents are not interested in their children's learning, and are uninvolved because they do not value education, that they are linguistically deficient and that they tend to be drug and alcohol dependent. Consequently, educating poor students requires a change in the attitudes of teachers, to educate themselves about the issues in poverty, to appreciate the hurdles the poor students must overcome and to constantly seek ways to help them do this, including raising personal expectations for these children.

J. Harris, *Education Review, 6 June 08*, investigates the continuing gap in achievement levels of Pasifika (Pacific Island) children in NZ education. The level of retention at senior secondary level for these students is improving, as are the number of educational qualifications passed, but the standard of attainment still drags behind all other groups. The flexibility of the N.C.E.A. system has particularly helped lower decile students. The reasons are complex. Language may be a factor where English is the family's second language, but health issues often arising from poverty and crowded housing have also been noted. Parents need help, partly to assist with improving parenting skills and partly to help them to help their children to achieve rather than just having high expectations for them. Schools which are trying various programmes to overcome the gaps need continuous and increased resources.

Psychologist **L. Loper**, *Education Review, 14 March, 08, p.6*, considers that underachievement is not just an issue for certain sections of the learning communities. Educationalist **G. Nuthall** found, after meticulous research in the classroom, that the learning process all schools use is by its nature inefficient and that even the best students could do far better. All teaching is underpinned by unsubstantiated beliefs which produce this inefficiency. In particular, teacher time is devoted to manager-of-classroom-learning role. There is now sufficient knowledge available which shows what must be done, starting with reduction in the amount of management teachers do. Learning is the student's responsibility and skill set. A new model of learning is needed which makes the student the go-to authority in terms of developing a workable process.

J. Gilbert, R. Boistad, Disciplining and Drafting or 21st Century Learning? Rethinking the New Zealand Secondary Curriculum For the Future, NZ Council for Educational Research, 08, calls for much harder questions to be asked about what students need to be learning and what will equip them for the future, rather than the current issues preoccupying secondary educators, such as assessment. Students need to be able to think and learn on their own and continue this into their adult and working lives. The latest focus on key 'learning competencies' is a useful start. New ways of learning and new ways of motivating students are needed.

Beyond School

J. Gerritsen, *Education Review*, 30 May 08, pp.10-1,1 notes that the government is seeking to substantially increase the number of post graduate students to enhance the contribution this sector can make to the next generation of researchers, and to upskill the current research workforce. But how many does the country need? It lags behind much of Europe and N. America in the proportion of postgraduate employees in government and in the private sector. The extra years of study are a significant cost barrier for many graduate students.

P. E. Barton, *Change*, Jan-Feb 08, analyses the same in relation to the US labour force. It is given that the quantity and quality of higher education is critical to the nation's future economic wellbeing, but there are complexities beyond that. While graduates may feature strongly in the current list of jobs with the highest growth rates, projections in the numbers in some of these show that non-graduates are acceptable. Earning trends are affected by economic downturns and also by gender; the percentages of young adults getting degrees is affected by demand, and also by gender. Some occupations also require long lead- times to produce trained graduates, as in science and engineering, while the potential for jobs to be outsourced must also be considered.

The challenge of meeting the global demand for tertiary education from the rising millions of young people will best be met by the new potential of the Internet in the burgeoning use of Open Educational Resources (OER). **Giving Knowledge for Free: The Emergence of Open Educational Resources**, OECD Centre for Educational Research and Innovation, Aug 07. The rapid pace of this development challenges all higher educational institutions, especially if they are not at present involved.

J. S. Brown, R. P. Adler, *Educause Review*, Jan-Feb 08, explore the application of such open learning using Web 2.0 and social learning. This further revolutionises learning. Knowledge is no longer a substance transferred from the pedagogue to the learner, it is created by the participation of learners of all kinds anywhere. Implicit in this social learning is the acquisition of the norms and practice of the field of enquiry. Distributed communities of practice which currently voluntarily maintain the open source software exemplify this trend.

B. Carter, *N. Z. Journal of Adult Learning*, Vol. 36/2, 08, examines the divergence of the lifelong learning concept from the original ideals promoted in the last two centuries by educationalist Thomas Dewey. He saw it as the cornerstone of a democratic society and thus as an active learning process which enables the individual to reflect and change throughout life, in turn influencing society. More recently it has become meshed with concerns by governments to promote employment capabilities and economic requirements. The democratic purpose has been dropped. This focuses responsibility for the success or failure of the economy on to the individual, rather than the institutions which develop and implement social and economic policy.

Listing

The Search for Intelligence, **C. Zimmer**, *Scientific American*, Oct. 08. Despite the apparent soundness of IQ as a measure of human intellectual ability, scientists exploring human genes find that the factors which may shape intelligence are highly elusive.

ECONOMICS/BUSINESS

French physicist **J-P. Bouchaud** observes, *Nature*, 30 Oct 08, p.1181, that because physicists have had so many accepted ideas proven wrong over the years, they have learned to be cautious about their models. Such healthy scientific experience has yet to occur in economics. Classical economics appears to be built on strong assumptions which have become axioms, such as the rationality of economic agents, despite contrary evidence. Classical economics has no framework through which to understand "wild markets", despite their obvious existence. Physicists have learnt to account for the wild effects of small perturbations, and through complexity theory they have learnt that a system's optimum state can be elusive and hyper-fragile. New economic tools are needed. The mindsets of economists and financial managers need to change.

The Ascent of Money: A Financial History of the World, N. Ferguson, Allen Lane, 08. Everything on the financial markets revolves around four things:-debt, investment, gambling and risk. Risk is particularly significant because its valuation must be correctly calculated. Long-Term Capital Management founders won Nobel Prizes for their work, but failed to base calculations on sufficiently long-term data. The lessons of history need to inform decisions about what needs to change. While the ascent of money has been one of the driving forces behind human progress, there is a process of creative destruction of ill adapted techniques, which needs to be accepted, not protected.

The Economist, 11 Oct 08, **Survey on the World Economy**, includes the emerging economies of Asia, Brazil etc. They have accumulated vast sums of capital, thus transforming the very nature of global finance. Rising protectionism is a possible consequence. Their role in efforts to restart talks in the Doha Round could most usefully focus on global concerns over security, not only in food, but in finance, the environment and energy.

Stormy Weather

B. Jensen, The New Zealand Institute, Dec 08, released the first of a series, to be continued in 09, on the **End of the Golden Weather** and what it means for New Zealand. The risks include: -the end of the commodity boom on which the country relies; credit and invest contractions; and a high level of indebtedness, though balanced by a fundamentally sound fiscal position. Striking the right balance over the next few years is critical. Further papers will examine the risks and exposures; the fiscal position; savings/capital markets; the government balance sheet, and NZ place in the world.

In mid-08 an international gathering of economists met in Paris to review and rethink the gravity of the global economic crisis. **J. K. Galbraith** summarises the outcomes, *Challenge*, Nov/Dec 08, with particular application for the incoming US President. The fundamentals of the financial crisis need to be addressed and kept as priority. A directed, long-term strategy should initially be based on public investment aimed at the reconstruction of the physical infrastructure of USA, and development of the new technologies for climate change etc. This needs to be done gradually, but

effectively, through revamping of the financial rules, with special reference to the role of the Federal Reserve.

Internationally there needs to be one country or region willing to act as consumer-of-last-resort, if export-led growth is to continue. US leadership is still needed. The ultimate survival of the dollar system depends on the reputation of the USA, for geopolitical reasons, for financial governance, and for the pre-eminence of its technological leadership.

Policy priorities:- while preserving its pre-eminence in its key currency role, the US should accept the inevitability and benefits of regional stabilisation blocs. The rising tide of home loss needs to be forestalled. The futures market needs to be re-regulated, and co-operation is needed with the food-producing nations to reduce restriction on food supply, with a commitment to the stabilization of the supply and price of staple foods. Speculators and institutions holding such assets will need to recognise their losses. Social security benefits will need to be expanded to provide more security for the elderly. Finally, the way through the present crisis requires collaboration and multilateral coordination.

Redefining Growth

Economist **H. Daly**, former senior economist in the environment department of the World Bank, realised early in the 90's that conventional economists failed to appreciate the finite nature of the Earth and its natural resources. Now a Professor in ecological economics, he investigates the questions of an economic system focused away from economic growth at all costs, and which emphasises qualitative rather than quantitative development. *New Scientist*, 18 Oct 08, pp.46-47, 52-523, reports on Daly and offers a vision of a steady state economy a decade hence, based on his ideas.

Wealth: Stake Your Claim in the \$2 Trillion Development Trend That's Renewing the World, **S. Cunningham**, McGraw-Hill, 08. This breezy exploration of sustainable development practised by corporations reveals processes which go beyond "doing no harm," and seek rather to restore. The diverse examples from all over North America redefine how wealth is created.

Carbon Strategies: How Leading Companies Are Reducing Their Climate Change Footprint, **A. J. Hoffman**, 07. This compilation of the best practices of large corporations also includes the Pew Center's experience of working with companies in its Business Environmental Leadership Council. Climate change is driving a major transition which will alter existing markets and create new ones. Key themes:-ensure strategic timing; establish appropriate levels of commitment; influence policy development; and create business opportunities.

On Innovation

Innovation Nation: How America is Losing Its Innovation Edge, **J. Kao**, Free Press, 08. What can be done by the USA can be done elsewhere, and some countries are already doing this. Neglect of the innovative roots can lead to social and economic decline, unless a national innovation toolbox is fostered. The focus should be on "wicked problems," so complex as to be nearly unsolvable. A flexible and creative workforce needs to be developed, augmented by foreign talent attracted by the oppor-

tunities presented by the wicked problems. A selected number of knowledge hubs, appropriately funded, would be the focus for this work. A national innovation adviser, a national innovation Council and an office of innovation assessment are needed.

G. Hearn et al, *International Journal of Cultural Policy*, Nov 08, explore the metaphor of "value creating ecology" rather than value chain when considering the creative industries and the policy implications in promoting them. These industries encapsulate three important trends:-that consumers are co-creators of value; that value is not primarily in the product but in the creative network; and that co-operation and competition exist together in these markets. Human capital management, urban policy and sectorial infrastructure need to be developed around this metaphor.

Listing

Social Intelligence and the Biology of Leadership, D. Goleman, R. Boyatzis, *Harvard Business Review*, Sept 08. Recent brain research is throwing new light on good leadership which has mastered and utilised the kinds of social behaviour which reinforce the brain's social circuitry, and which are the basis for company culture and for personnel decision making. Development of a leader's social circuitry, identifies strengths and weakness, and trains suitable improvements.

FUTURES THINKING

From the Darker Side

Worst-Case Scenarios, C. R. Sunstein, Harvard Univ. Press, 07, analyses the types of responses by governments and people to such scenarios. Five themes are explored:- intuition and analysis; overreaction and neglect; worst cases everywhere; risk and uncertainty; well-being, money and consequences. The precautionary principle can be incoherent, the irreversible harm principle has some relevant application, and a balance is needed between planning ahead or failing to do so.

Blindside: How to Anticipate Forcing Events and Wild cards in Global Politics, Ed. F. Fukayama, Brookings, 07. Among the contributions is an especially useful one from P. Schwartz, D. Randal, who discuss the key features of strategic surprise and some signals of further surprises which seem implausible at present. For example:- the breakup of Indonesia, and a grand Russian-European alliance.

Does Ethics Have A Chance In A World of Consumers? Z. Bauman, Harvard Univ. Press, 08. This distinguished UK sociology academic reflects on the need for humanity to find a new way to think about the world we live in and our lives within it. Our identities are in a constant state of renegotiation amidst the kaleidoscope of contemporary society. Our human bonds are weakening as supporting institutional frameworks decay, while many are more fearful of insecurity rather than lack of freedom. Globalisation is an ethical challenge even as our cities are turning from shelters to the principle source of dangers. Humanity need to explore options which can be used to create a new global 'good life' ethic.

A New Approach to Futures Work

R. Slaughter and a group of Australian futures practitioners have developed an

approach called integral futures, *Futures*, March 08, which can enrich and deepen futures work. **R. Slaughter**, in his introduction to the special issue, notes that the depth within the practitioner determines how well or badly the particular method is used. This challenges futures thinking to overcome the limitations of a particular cultural tradition. Among the range of contributions, from **P. Hayward, R. Slaughter, J. Floyd, M. G. Edwards and J. Voros, C. C. Stewart** outlines the integral approach as it can be applied to, and enrich, scenario work. Some basic tools come from **K. Wilber's** four quadrants meta-theory and the spiral dynamics of **C. Graves**, with further ideas from **S. Inayatullah**. A generic scenario process is outlined with some applications from recent case-work in Australia.

Civilisations and Resources

S. Bunker, P. Ciccantell, Globalisation and the Race for Resources, John Hopkins Univ. Press, 05, provided a world-systems perspective on the accelerating driving forces in the struggle for raw materials and how this has shaped global trade, financial flows and political instruments for the past six centuries. It provides a materials and a spacial perspective, emphasising the significance of nation states and the significance of the location of resources. There is a constant feedback between the processes of extraction, transportation, finance, consumption and the political power of the hegemonic states. This is offset by the increasingly degraded local economy, subject to the whims of the market, with its captive political structures complicit in the intensifying inequality. The authors foresee the need for countering co-operative relationships between the consumers of raw materials and those in the poorer commodity producing ones, and for a social system de-linked from the accelerating material intensification and special expansion. See also *Review*, xxx, 2, 07, **K. Abramsky, D. O'Hearn, D. Tomich** for commentaries.

Plan B 3.0: Mobilizing to Save Civilization, **L. R. Brown**, W. W. Norton, 08, repeats, with updates and greater urgency, the call to face and respond to the unresolved problems. "We are in a race between tipping points in nature and our political systems." Plan B:- Shift taxes, with a worldwide carbon tax; shift subsidies away from environmentally harmful activities; engage in measures to stabilise climate; establish a new US Dept. of Global Security; and a (US) Plan B Budget focused on environmental and social goals.

HEALTH/MEDICINE

On Health Equity

J. E. Lawn et al, *The Lancet*, 13 Sept 08, revisit the principles of equity, social justice and health for all, formulated by the thirty-year-old **Alma-Ata Declaration on Health and Primary Care**. It is still highly relevant, though new priorities, such as HIV/AIDS and mental health, have emerged. Over the thirty years, lessons have been learnt and policy shifts have been made. From underinvestment, the focus is moving to single disease focus. The ongoing debate between selective (vertical) and comprehensive (horizontal) delivery is combining the strengths of both into integrated health systems. High and equitable coverage in primary health care requires consistent politi-

cal and financial commitment, incremental implementation based on local epidemiology, use of data to direct priorities, and assess progress and effective linkages with communities and non-health sectors. The last two are the weakest strands in primary care. Longer term planning to ensure sufficient primary health care workers, better training and supportive supervision are also needed. Essential drugs polices have helped greatly but other appropriate technology lags behind.

A **Commission on the Social Determinants of Health** was created to examine the evidence regarding measures to promote health equity, and to foster a global movement to achieve it. It is a collaboration of policy makers, researchers and civil society. The Commission reported in August 08, summarised in *The Lancet*, 8 Nov, 08, **M. Marmot et al.** Life chances differ depending on where in the world a person lives and at what income level. This imbalance (health inequity) is killing people, and its reduction is an ethical imperative. The fundamental cause is the unequal distribution of power, income and goods and services, globally and nationally. It is the result of poor social policies and programmes, unfair economic arrangements and bad politics. These structural determinants and conditions of daily life constitute the social determinants of health. Closing the health inequity gap is possible. The knowledge exists to make a huge difference to peoples' life chances. Action must start now. There are three principles of action. One, improve the conditions of daily life. Two, tackle the inequitable distribution of power, money and resources, globally, nationally and locally. Three, measure the problem, evaluate action, expand the knowledge-base, develop a workforce that is trained in the social determinants of health and raise public awareness of these.

Bioethics researcher **L. R. Churchill**, *The Lancet*, 29 Mar. 08, pp.1066-1067, questions the social justice dimensions of bioethics, "through time", or fairness beyond the lifespan. Bioethics has few ethical theories or moral traditions which explicitly recognise this dimension, except for that of religious environmentalism, which likens humans to stewards of natural resources. What would it mean to ask about the impact of our post-mortem health and medical footprint? More broadly, it would also mean far less attention to medicine and far more to public health. How can the ever-expanding and expensive medical systems be helpful to future generations?

Future Bioethics: Overcoming Taboos, Myths and Dogmas, R. A. Lindsay, Prometheus, 08. An expert legal-bioethicist offers a well-reasoned, pragmatic approach to controversies in the bioethics, which is based on a theory of finding common ground and then applying commonsense reasoning. Assisted dying; conscientious objectors in healthcare; genetically modified food; genetic enhancement and stem-cell research are examined in this light.

China's Health Issues

Despite the accumulating deaths, particularly among males, and the mounting health costs for late stage treatment for lung cancer, there is little evidence that the population (especially smokers) links the heavy promotion of cigarettes with their own malady. Researcher **M. Kohrman**, *China Journal*, No 58, 08, reports in depth on three social-historical forces which are crucial to producing and depoliticising these attitudes. One is the paradox, not only found in China, where government authorities

promote public health, yet profit from the commodity. Tobacco is moderately priced, and while the authorities promote public education about the evils of tobacco and closely regulate its production, they profit from taxing it and refuse to ban it. Smoking has also become a life-enhancing activity for generations of men, essential for male social bonding and even success, as smokers meet together for some hours and exchange cigarettes. Once lung cancer occurs, the victim's response is muddled by past memories of a lifetime of smoking.

Clearing the Air: The Health and Economic Damages of Air Pollution in China, Eds. **M. S. Ho, C. P. Nielsen**, MIT Press, 08. A rough estimate by the editors suggests that the air pollution effects on China's public health cost the country about 137 billion yuan or 1.8% of GDP annually. In addition to the human cost there are the effects on crop productivity, forests, ecosystems and the materials in the built environment. An enormous amount of quantitative research is presented. Policy proposals focus on market instruments such as fuel taxes, and a "green tax" on the gross output of each economic sector in proportion to the local health damage. The latter would spread adjustment costs beyond the coal sector. Fuel taxes are more compelling since they would also help to reduce the carbon dioxide emissions by 11%. Overall, using the right instrument, the benefits of pollution control would far outweigh the costs.

Global Disease Issues

The recent melamine-contamination of milk scandal in China reiterated the international problem of preventing, detecting and controlling health threats which can spread beyond national borders, **D. M. Bell**, *Far Eastern Economic Review*, Oct. 08. Such episodes can have enormous economic as well as health impacts. Revised International Health Regulations were adopted by 192 nations of the WHO in 2000 because of this. In addition to its health concerns, IHR seeks to promote global trade security affecting travel, supply and distribution chains, continuity of business operations, and safety of imports and exports. Major challenges to IHR are technical and economic. Many poorer countries lack the necessary infrastructure. Partnerships between richer and poorer nations could overcome this. The economic difficulties can arise for countries reporting health-threatening outbreaks within their borders. The security of their tourist industries is an incentive to comply while compensation or insurance policies could be considered.

Nature, 21 Feb 08, pp.898-899, **M. E. J. Woodhouse** reports that as the stream of new or unexpected infectious diseases has continued, it has been collated into a systematic, qualitative analysis of the recent global patterns, see **Jones, K. E. et al**, *same issue*, pp.990-993. The frequency of events peaked in the 1980s (possibly with the onset of the AIDS pandemic). Most events appear to occur at higher latitudes, which may connect with the greater incidence of reporting from those regions, although overall, outbreaks occur where population is densest. Humans and other vertebrates share 60% of the infections. Drug resistant infections account for 20% and are especially common at higher latitudes, while vector-borne diseases are also 20% and rising, possible because of climate change. Potential "hotspots" of disease emergence show up in Central America, tropical and Southern Africa.

Science, 18 July 08, **Special Section, Drug Resistance**, provides several leading-edge contributions:- an overview by **G. Taubes**, on the rise of the so-called bad, drug-resistant bugs, and the decline of companies researching new treatments. Several strategies can be used, including curbing use of antibiotics, focus on narrow, rather than broad-spectrum, drugs, and experimenting with shorter courses of drug treatment. A second article reports on an innovative, international collaboration of medical practitioners developing treatments in Siberia for the growing threat of multidrug-resistant TB. Two other contributions look further at the research possibilities.

More generally, **J. S. Sachs, Good Germs, Bad Germs: Health and Survival in a Bacterial World**, Hill & Wang, 07, analyses the issues and the promising new technologies.

Hope is growing in Africa, the crucial focus of the campaign to roll back malaria, **M. Grabowsky**, *Nature*, Feb 08. Efforts launched in '98 by WHO have recently been boosted by massive funding from several sources, including USA. Four interventions are especially utilised:- insecticide-treated sleeping nets; under-the-house spraying with insecticides; preventive treatment for pregnant women; and timely treatment of the sick with effective drugs. The goal is 80% coverage with each of these by 2010. Since malaria is a disease of poverty, access to the interventions for most people means that clinic-based services cannot be the sole channel. These may be satisfactory for pregnant women, but resource-poor governments need to co-operate with civil society. More investment and training are needed for malaria surveillance and monitoring. *Same issue*, pp.1042-1046, **B. Maher** reports on a pioneering vaccine which, after two decades of work, may be the major new tool for controlling malaria.

Other Issues

Toxic Exposure: Contested Illnesses and the Environmental Health Movement, **P. Brown**, Colombia Univ. Press, 07. This global movement has been gathering strength for the past three decades, in a massive challenge to established ways of regarding the health-environment connection. Environmentally induced disease, the excessive, hazardous exposure to multiple toxic substances and the laxity of governments about regulation, have all fuelled widespread activism from:- women, scientists, communities with suspiciously high disease incidence and marginalised groups unduly exposed to the dangers. Despite the successes so far, much more needs to be done. Special focus on asthma, breast cancer and Gulf-War illnesses.

D. W. Dodick, J. J. Gragus, *Scientific American*, Aug 08, examine the latest research on the causes of migraine. This used to be considered a vascular disorder, but it is now seen to be neurological, caused by a wave of nerve cell activity that sweeps across the brain. This in turn opens up new possibilities for treatment.

The use of cognitive-enhancing drugs to improve memory, or concentration or reduce impulsive behaviour is widespread. **B. Sahakian, S. Morein-Zamir**, *Nature*, 27 Dec. 07, pp.1157-1159, examine the pros and cons for such prescriptive use. Currently there are concerns regarding the effects on individuals, but as the drugs become "smarter" there are impacts for society as a whole, especially when the drugs can be purchased over the Internet. Agreement on regulation is urgently needed.

S. RamaRao et al, *Gender and Development*, July 08, examine new vistas in contraceptive technology, as population forecasts to 2050 indicate that there will be many of both sexes who need new and more appropriate methods. User autonomy, better protection against sexually transferred diseases and AIDS, and the control of the methods, raise significant challenges, which are being pushed by women's health advocates. New methods under development are discussed, some of which address male needs and concerns.

Nature, 15 May 08, **Insight**, offers six expert studies, plus an Introduction, on the promises and challenges of the next era of regenerative medicine gained from the study of model organisms and cell culture.