

Global Peace Services USA

...an idea whose time has come

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Greetings from John Eriksson, President, GPS USA.

The first article in this issue of the GPS Newsletter focuses on the role of the Mekong River in impacting on the economies and politics of the five Southeast Asian countries plus China, bordering the river. The author concludes that among the dominant forces shaping that role is the engineering profession. The second article explores the potential for global calamity as a result of biological threats.

The first article, “The Mekong: Development, Destruction, and Risk of Conflict,” by GPS Board Member, Robert Muscat. deals with a subject the author knows well as an expert on Southeast Asia. Our first article is a tour d’horizon of the politico-economic history over the last millennium of the Mekong, one of the world’s great rivers, running 2,700 miles from Tibet, through China, to the five countries of Southeast Asia — Myanmar, Laos, Thailand, Cambodia, and Vietnam, The author focuses on the Post World War II international political economy of the Mekong, including the role that engineers have played during this era. Under UN auspices, planning and development efforts along the river were guided during the first 25 years by an “original core objective of enhancing regional peace.” But parallel developments made this objective elusive. Cold War-driven political instability afflicted all countries of the region (including the Khmer Rouge reign of terror in Cambodia (1975-79)

With relative peace in the 1990s, an era of major infrastructure construction mainly of hydroelectric dams along the Mekong began and continues to this day. This development, which provided relatively cheap, reliable power to countries in the region, also had a downside: adverse environmental effects and displacement of populations living near the river and dependent on it for their livelihoods. Muscat provides examples of the mixed impact that post-war Mekong development has had. He also finds the dominance of the engineering perspective as one key to resource development in Mekong development, thus implicating the engineering profession in the adverse impacts as well as the benefits. Two questions arise: what actions by engineers might have mitigated the adverse impacts; and what actions might engineers and political leaders undertake now to champion and design a more environmentally and socially friendly Mekong infrastructure?

The second article, “The Biohazard Threat,” is contributed by Douglas A. Samuelson, President and Chief Scientist of InfoLogix, Inc. of Annandale, VA. The author finds that the threat from existing biological agents and potentially manufactured ones is real and underestimated. Samuelson outlines the characteristics that increase our vulnerability to these agents, including mutating infectious organisms, misuse of antibiotics promoting resistant microbes, human encroachment into isolated areas, faster transmission because of extensive rapid global travel and

two other characteristics explained in the article (distortion of resources by focused programs and resources stretched thinner and over-optimized). The author goes on to describe how the invasive agents attack us and the features and tactics they typically employ to make their attacks so potent.

The author provides an example: a mutant strain of influenza. Because initial symptoms may mimic those of other respiratory ailments, the infected may put off consultation with health professionals. By the time they do, they are highly contagious and infect those around them. The author concludes that the most effective response may be isolating everyone who was exposed, thus violating social norms. But under current public health practice, emergency rooms are likely to be the main source of contagion since patients with symptoms and those without are not segregated. Some communities plan to set up mobile clinics in neighborhoods or establish temporary facilities separated from emergency rooms. The author observes that there is no accepted national standard of how to respond.

Samuelson recommends that more resources be allocated to R&D with standards to protect against criminal means; to health worker training with access to navigable databases on best practice; and to community plans for distribution of medicine to minimize reliance on emergency rooms. The author concludes that “the best defensive system is readily available health care for everyone, from providers who report promptly to the national health information network.”

In order to continue and expand our current work, such as the GPS Newsletter, so that we can continue putting out our newsletter, with essays and articles readers are unlikely to find elsewhere and hold special events, such as the December panel on the Colombia Peace Process, we do need greater resources. Please consider making as generous a tax-deductible contribution as you can to GPS. This may be done by mailing a check to the postal address shown above or through our website www.globalpeaceservices.org. Phone: 301-681-6968.

The Mekong: Development, Destruction, and Risk of Conflict

The Mekong, one of the world's great rivers, runs 2,700 miles from Tibet, through China, to the five countries of Southeast Asia — Myanmar, Laos, Thailand, Cambodia, and Vietnam. The idea of harnessing the Mekong for irrigation goes back as far as the Khmer Empire in the ninth century. The systems the Khmer constructed were eventually abandoned due to conflicts between the Khmer and rival peoples in the region. Only in the 19th century were efforts resumed to develop the river's potentials, this time focused on transportation. In the early 1900s, international cooperation began to promote mapping and other preliminary activities. Finally, after World War II, a massive program to harness the Mekong for regional development was launched. Conceived as a way to ensure regional peace and cooperation, the program has supported the region's often rapid economic growth. But it has also had unforeseen deleterious consequences for the region's environment, is threatening the livelihoods

of many riparian communities, and is producing conflicts of interest that could undermine the original core objective of enhancing regional peace.

In the 1950s, the broad concept of multi-country development of the Lower Mekong region (the “main stem” plus the tributaries) was hatched and then initiated under the auspices of the UN regional office, the Economic Commission for Asia and the Far East (ECAFE), headquartered in Bangkok. Major study began after the 1954 Geneva Accords that ended the conflict over French withdrawal from Indochina. The region for these studies comprised Laos, Thailand, Cambodia, and South Vietnam. The body overseeing the studies, established in 1957, was dubbed the Committee for the Coordination of Studies of the Lower Mekong Basin.

The Committee was launched with enthusiasm from the four riparian countries, from numbers of UN

members and private foundations offering financial support, and from the UN itself. The initial scheme called for five major dams on the main stem, and four on tributaries to generate hydroelectricity, facilitate irrigation and flood control, and to improve navigation. Support would also be given to conduct research on exploiting the region's agricultural and mineral resources. The program was projected to take 25 years.

The underlying geopolitical objective was peace: common purpose would replace historic animosities. The exigencies of cross-border water control and distribution, the sale of electric power from producing to consuming countries, and other joint management requirements, were expected to smooth the path of regional peace as the region shifted from mostly colonies to all independent states. As the first executive of the Mekong Committee, American C. Hart Schaaf, wrote in 1963, "In conditions of peace and security, the Lower Mekong Scheme can be a tremendously productive undertaking. Indeed, all associated with it hope and believe that the Scheme itself will contribute greatly to just such an achievement of peace and well-being for all people of the Lower Mekong Basin." [*The Lower Mekong: Challenge to Cooperation in Southeast Asia*, C. Hart Schaaf & Russell H. Fifield, 1963, Princeton: Van Nostrand, p.129.]

While research, planning and some implementation got underway, the expectation that cooperative development based on the Mekong would promote peace proved unrealistic in the face of the Cold War conflicts that soon wracked the region plus the violent interregnum of the Khmer Rouge years (1975-1979). After the years of turbulence came to a close, it became possible to begin realizing the regional development program along the original lines, the core being the engineering works on the river's main stem and tributaries.

In fact, the riparian countries have enjoyed substantial economic growth since then, with Mekong development complemented by major investments from abroad and international assistance in infrastructure, industry and human capital. In 1958, the Lower Mekong countries' population was around 40 million; it has now reached 186 million, of whom 66 million live in the geographic Basin which

includes most of the population of Laos and Cambodia. In the development process, the concept of the region as an integrated unit has expanded. China and Myanmar have joined the (now more complex) governing architecture so that now the entire Mekong riparian region is embraced. (Vietnam, of course, now comprises both the former North and South entities.) The Mekong is now rich with multi-country committees, associations, and partnerships, and declarations of joint cooperation and good intent.

In sum, the Mekong region concept is unfolding, realizing the vision of the founders over 50 years ago. However, in a cascade of unforeseen consequences and ironies, the mastering of the great river may have gone too far and threatens to engender both heavy environmental costs and economic damage and new sources of potential regional conflict.

The environmental downsides, and the groups exposed to economic threats or losses, have been laid out by Brian Eyler in his recent book *Last Days of the Mighty Mekong* [2019, London: Zed Books]. In another recent study, Amy L. Freedman and Ann Marie Murphy examined the governance arrangements for coping with the river development problems and with other regional threats from climate change, food production issues, health hazards, and migration [*Nontraditional Security Challenges in Southeast Asia; The Transnational Dimension*. 2018, Boulder: Lynne Reiner.] In recent years, many technical journal articles, newspaper reports, and webzines have publicized what has been happening to the Mekong region in plain sight.

The management of the many dams, the timing of their water storage and release timing being tied to the needs for power generation, has altered the volume and seasonal downstream flows of the main stem, profoundly affecting the age-old agricultural systems. Thus far, China has built eleven large hydroelectric dams on the upper Mekong and plans to build perhaps eight more. On the lower Mekong, Laos has built two on the main stem, sixteen on tributaries, with plans for more. Electricity generated by these dams and sold to Thailand, Cambodia and Vietnam, has become the largest Lao export earner. Cambodia is constructing one and plans two more.

One striking effect of this vast hydro construction has been a change in the remarkable seasonal rise and fall of water in Cambodia's great Tonle Sap lake, reducing the annual fish catch, the country's main source of protein. Eyler details the many complex ecological interactions caused by the altered flow and the negative consequences for many downstream communities. In a further complex hydrological alteration, climate change has begun to transform the pattern and intensity of the region's monsoon rains. Rising sea levels also will greatly complicate efforts to cope with the problems the dams are already creating for the region's hydrology and ecology: river bank erosion, diminished fisheries, reduced sediment deposit needed for maintaining the delta's fertility, and diminished biodiversity. (Through the internet, it is easy to keep abreast of news about these problems. One site focusing on the environmental issues is *Mekong Eye News Digest*.)

The intergovernmental planning and consulting machinery has been fully engaged on these problems. It has commissioned several expert studies and fostered extensive consultative/negotiation processes aimed at slowing and rationalizing the construction of additional dams. The machinery also hosts recurrent meetings for information-sharing and dialogue. Drought in the last two years has intensified the concerns and given impetus to the dialogue. Despite these efforts, and the activities of regional and international NGOs, dam construction is moving ahead. Powerful forces stand to benefit, including engineering and construction firms, local political interests, and the manufacturing and other sectors that are growing rapidly and depend on increasing supplies of electric power.

Tackling these internal problems will be made more difficult by looming external threats to the region's stability: overlapping claims to islands and seabed resources in the South China Sea; US-China trade and other tensions; rising Chinese regional investment and military positioning. And while China has promised responsible river management coordination, its large upstream dams amount to a potential instrument for hegemonic influence.

How these factors will interact with the dynamics of the internally generated problems remains to be seen. The international community has a lot at stake and

needs to help all these complexities work out in a way that benefits the region's people and avoids sliding into the worst outcome — armed conflicts. While armed conflict may now appear to be an unlikely outcome, the build-up of social pressures from the affected populations could force their leadership to undertake more confrontational action.

The prospects for the riparian countries reaching a harmonization of interests do not seem bright. Freedman and Murphy conclude that “in Southeast Asia we see poor performance by states to adopt and implement policies to protect their citizens from transnational threats and poor cooperation among states within regional and international organizations to facilitate cross-border coordination to solve common problems.” [Freedman & Murphy, p. 217.] They also see little prospect that China or the U.S. will weigh in to promote greater cooperation.

Although Eyler sees some glimmers of hope in a slowing of Thailand's need for imported electricity and in the region's potential for solar and wind-based power, he stresses the overwhelming, and apparently unstoppable, drive in China for hydroelectric dams. He is also skeptical that harmonized environmentally-sound policies of the riparian countries will eventuate. He calls the delta's degraded condition already “a kind of ghost of the future of the rest of the Mekong.”

In sum, we see in the recent history of the Mekong a whole range of inter-connected problems and development ironies: the dominance of the engineering perspective as the key to resource development; economic growth success undermining its own bases; the power of interest groups in the forefront of economic development to shape policies for their own benefit; injustices imposed on relatively powerless communities; the inability of weak international organizations and consultative machinery to affect sovereign government determination; the fecklessness of leadership apparently indifferent to long-term consequences for peoples other than their own; and the potential destabilization of an entire ecological region through the “harnessing” of its water sources. Finally, there is the environmental paradox in this region that hydro power, while avoiding the production of greenhouse gasses that would otherwise have poured out of coal-

fired plants, is causing a different, but profound, deterioration in the region's environment.

The Mekong story should serve as a cautionary tale for the planet as a whole. As Eyler concludes his

account, "Unless we begin today to see the river and the landscape around it as a connected system and act jointly for its conservation, the Mighty Mekong's last days are here and now."

✿ Robert J. Muscat

The Biohazard Threat

Is terrorism, especially nuclear terrorism, the worst threat you can imagine? If so, pay attention. Are you aware that an epidemic within the last century, starting in the United States, killed more people in four months than did all of World War I? And do you realize how many programs there are, at levels ranging from terrorist cells to large nations' militaries, doing research and development on biological weapons? And with what controls and restraints, not only against deliberate attacks but also against deadly errors?

In 1993, journalist Laurie Garrett, in *The Coming Plague*, warned of a growing threat from newly emerging health problems, especially infectious diseases, in a world increasingly vulnerable to rapid spread. Her book was highly acclaimed, but apparently not widely heeded.

The book's subtitle is *Newly Emerging Diseases in a World Out of Balance*; Garrett cited several factors that increase our vulnerability:

- mutating infectious organisms,
- misuse of antibiotics promoting resistant microbes,
- human encroachment into isolated areas,
- faster transmission because of extensive rapid global travel,
- distortion of resources by focused programs and
- resources stretched thinner and over-optimized.

The latter two points may require some explanation. Garrett gives the example of an intensive AIDS program in Central Africa unintentionally resulting in a big increase in malaria, as the AIDS program hired nearly all of the most experienced nurses away

from general clinics. And slack capacity is suboptimal, but it is also the key to resiliency. If you have no empty hospital rooms, you have no capacity to treat a sudden surge of patients.

How the Microbes Attack Us: A Military Assessment

Current US military doctrine emphasizes "net-centric" and "swarm warfare" — concepts that seem to make forces much more effective: small, loosely coordinated forces can overwhelm much larger hierarchically organized forces. This "Netwar" concept — in an information-rich environment, networks tend to outperform hierarchies — was a key to the initial US success in Iraq — and to the subsequent failure to rebuild the country, as the US and the new Iraqi government became the sluggish hierarchy and the insurgents became the agile network of small, semi-independent forces. (Samuelson, 2003) Now consider a "swarm warfare" analysis of infections: the microbes have been steadily losing to humans, as developments in medicine seemed to promise to banish infectious diseases entirely. The attacking microbes need new approaches, and they can find them simply by trying everything they can come up with and then doing more of whatever succeeds. We can also reason that the successful approaches are likely to involve attacking where either the defenses or the detection capabilities of the adversary — us — are weak. Therefore, the most potent invaders are likely to have many of these features:

- low lethality — don't kill hosts quickly or
- dramatically,
- long latency period,
- causing symptoms that are easily misdiagnosed,

- causing a stigmatized condition, so people will be reluctant to report it,
- teaming up by multiple pathogens to cause complex disorders,
- exploiting human immune system cells against the human immune system, and
- exploiting inorganic “allies” to amplify their effect — that is, causing a disorder to which chemical or dietary exposures make the victim more susceptible and/or less resistant, as with the magnification of HIV infectivity by intravenous drug use.

Both diagnosis and treatment become more difficult when the indicated interventions violate social norms. An example of such an intervention would be a large-scale community quarantine, such as the one the World Health Organization imposed on Toronto to contain SARS in 2003. Another example is the attempt by public health officials to close gay bathhouses and discourage unprotected gay sex in the early 1980s. The latter example violated two sets of social norms: the gay community’s reluctance to accept any negative information about their activities, and the general public’s reluctance to acknowledge gay sexuality at all.

Yet another aspect of the growing risk is the changing and increasing interaction of humans with animals. A number of devastating human diseases developed naturally in some animal species and then jumped to humans, usually because of human encroachment in places where there had been little inter-species interaction: plague, AIDS, Ebola, and various mutant influenzas and other respiratory infections are among the most prominent examples. (Quammen, 2013) Identifying and containing new animal-based infectious diseases constitute another underfunded and under-appreciated area of research and response.

Example: Influenza

So, what might a major new threat look like? One of the most potent candidates is seemingly one of the more ordinary: a mutant strain of influenza. One noted CDC expert claims that, for him and his colleagues, flu is the most worrisome threat at this time. (Khan, 2016) Flu looks like many other respiratory ailments. It seems minor at first, and people often wait to see whether it gets better before

seeking treatment or altering their behavior to reduce the chance of infecting others. Given the typical three- to five-day latency period, this delay is sufficient to ensure widespread contagion for a strain that is easily transmitted human-to-human.

No human subpopulations would be conspicuously more vulnerable than others to influenza, and there are interactions with other ailments (secondary respiratory infections by other organisms are common.) Perhaps most important, the most beneficial response — isolating everyone who may have been exposed — violates social norms. In fact, without a change in current public health practice, emergency rooms are likely to be the main spread vector, since they do not segregate symptomatic and asymptomatic patients. For this reason, some communities have plans to set up mobile clinics in numerous neighborhoods, or to set up temporary additional facilities separated from their emergency rooms, in the event of a pandemic. There is, however, no accepted national standard of how to respond.

This is important because influenza, just influenza, has already caused the deadliest pandemic in history — more fatalities than the Black Death (bubonic plague) in the 14th century, more than smallpox, more than malaria. Depending on which data sources one trusts, the Great Influenza of 1918 killed somewhere between 25 million and 50 million people worldwide, mostly within four months — as much as twice the total combat fatalities from World War I. (Barry, 2004) It most likely started in the rural US and spread quickly even in cities with excellent public health systems. Given its infectiousness, even good detection simply wasn’t quick enough.

Responses to epidemic outbreaks have not improved much. In 2016, the Olympics in Rio de Janeiro presented a “perfect storm” scenario for an outbreak of a disease like mutant influenza: large numbers of people from all over the world packed into a crowded city with inadequate infrastructure for normal conditions and not nearly enough health resources to handle a crisis. Brazil requested massive aid to deal with the one type of infection identified as an imminent threat: Zika. The US contributed about \$1 billion worth of aid, and afterward, U.S. leaders were self-congratulatory about the relatively small number (around 11,000) people in the U.S. who got infected.

However, those 11,000 people spread the infection, within two months, to 47 states of the Union! By the end of the year, two more states reported cases — only Alaska remained Zika-free. (CDC, 2016) If Zika had been directly human-to-human transmissible, rather than requiring mosquitoes as intermediaries, this would have been a major pandemic. Current US readiness to counter such threats does not inspire great optimism and simply must not inspire complacency.

Research: Helpful or Harmful?

For an issue of this importance, it is natural and logical to call for more research into diseases and health system responses. Some caution is in order, however. Most major nations conduct research that could facilitate both response to outbreaks and creation of weaponized organisms. And accidents happen, sometimes on a large scale: the largest known such accidental release of a pathogen was an anthrax leak that occurred in 1979 at the Soviet facility in Sverdlovsk (the city is now renamed back to Yekaterinburg), with 66 fatalities and over 1000 people sickened. (Alibek, 1999)

The difference is that, since the mid-1970s, only a few major nations — one, in particular, the USSR — conducted research on biowarfare. The Biological Weapons Convention (BWC) was opened for ratification in 1972 and went into effect in 1975, having been ratified by 22 states-parties. There are now 182 states-parties and five additional signatories. The UN Security Council is responsible for monitoring, but no complaint has ever been formally raised to it. There is an Implementation Support Unit, created in 2011 with the resources (three full-time staff members) to follow up on allegations. The ISU is housed in the UN Department of Disarmament Affairs in Geneva. (Arms Control Association, 2018) My recent search of the Internet produced little evidence of serious NGO advocacy in this area.

With the fall of the USSR, their program largely stopped, but many of the scientists and some of the stores of organisms may have moved to other countries where they were less controlled, and there was much less monitoring by large nations. The threat now appears worse, not better, than during the Cold War.

Improving technology has made bioweapons research and development accessible to a larger variety of possible actors, greatly complicating prevention and non-proliferation. (Fong and Alibek, 2005) A large nation generally would not launch a highly infectious organism because of the risk of spread to their own population. Some smaller nations and organizations might have no such compunctions. Also, proliferation of bioweapons research and development greatly increases the chances of theft by even worse-behaved parties, and of accidents. An example of what could happen is the surprising synthesis and deployment of nerve gas by the Aum Shinrikyo doomsday group in Tokyo, Japan, in 1995. (The group had produced some enhanced versions of infectious organisms, as well, using very modest resources.) Another example is the mailings of anthrax spores to several people in the U. S. Senate and the news media in 2001. This attack was thought to have been executed by a rogue scientist at the US Army's bioresearch facility at Fort Detrick, Maryland; but to this day, there has been no conclusive determination of responsibility.

In addition, even seemingly innocent dissemination of information could be harmful. In 2012, a couple of academic researchers were barely restrained by journal editors from publishing how to weaponize H5N1 avian influenza by making this highly lethal strain human-to-human transmissible. (Global Biodefense, 2012) After considerable study and debate, this research has resumed. (Stat News, 2017) Better standards regarding what research should be disseminated, and perhaps even what research should be done at all, are required. Anti-bioweapons activists need to be insistent, but careful about what they wish for, as the same research that produces new weapons also yields better countermeasures. We need both more research and more well-considered restrictions.

Another critical area for research and planning is response. We would benefit greatly from a nationwide warning system, alerting health professionals to possible outbreaks, and a readily available source of online information about how to diagnose and treat whatever seems likely to be of greatest concern at the moment.

Relying on general medical training would overwhelm health professionals with far too much

information about mostly unlikely conditions; what they do need to know is how to access an easily navigable database of current symptomatology and treatment, and which malady to look for right now. We also need community plans for distribution of medicine: otherwise, infected and not-yet- infected people tend to congregate at emergency departments which thereby become the major spread vectors.

Finally, the research and dissemination policy issues include computation as well as biology. Recent and continuing increases in computational power make complex biochemistry and genomics more attainable, for good and ill. The numerous recent lively policy-level discussions of research and development of unmanned combat systems have rarely branched out to address possible restrictions on the use of high-performance computers in bioweapons development. This is in spite of the fact that the development and dissemination of changed organisms requires considerably less technical skill to implement the computers' recommendations than does weapons design and deployment.

Conclusion

So, can we detect and counter “the coming plague”? From the examples of AIDS, Zika, influenza, and other ailments, it is clear that we need not worry about whether an emerging health threat could sneak

through our best detection systems; a few of them already have! (Samuelson, 2008, and Zika, as discussed above, CDC, 2016). It is also clear that early detection of emerging health threats, whether naturally evolving or manmade, is critical. Hence the best defensive system is readily available health care for everyone, from providers who report promptly to the national health information network. Improving that network's resources and plans is also critical. (By the way, if you're still more concerned about nuclear threats, note that treating and containing individuals contaminated by radiation works very similarly to containing a contagion and raises many of the same moral issues about how to do it.) Therefore, the largely partisan debate over financing of health care has distracted attention from a much more critical issue: universally available in-network low-cost health care may or may not become a right but it is already a national security imperative. And so is careful, comprehensive study and preparation of how to respond to infectious outbreaks.

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