In this issue

Guns and Roses

Policies to avert a bio-war

Bacteria, viruses and other biological agents have been invading human bodies since forever. Even though individual humans have a highly specialized immune system to deal with such security breaches, certain strains of microbes, fungi and their toxins are particularly lethal. Because these are hard to detect and spread easily, such agents can be used as weapons to cause deaths, fear and widespread chaos in enemy territories.

The first few instances of biological warfare date back to 600 BC, when infected cadavers and animal carcasses were used against enemies. Polluting water sources with toxins was also a common strategy. Since then, the instruments of biological warfare have become more sophisticated.

Although restrictions have been imposed on the use of bio-weapons – first in 1925, and again in 1972 – such lethal agents continue to exist. Several countries and even individual terrorist outfits have amassed an armoury of bio-weapons that can be unleashed in times of war. Because bio-weapons are tough to detect, can spread easily and even infiltrate areas that are inaccessible to the military, it is imperative to review and reformulate our policies to suit present exigencies. On **page 1675**, read a Review Article by researchers from the Panjab University, Patiala, listing the laws, checks and balances that India has set in place to prevent bio-weapon assaults. The authors have put forth some recommendations to upgrade the policies.

Reading between Lines

Trend lines and drug usage

In the late 1950s, thalidomide, a drug to relieve morning sickness in pregnant women, was launched. But later, thalidomide was found to foster birth defects in babies. This is probably the most infamous adverse drug reaction in the history of pharmaceuticals. Even today, despite stringent testing protocols, certain drugs end up causing adverse reactions in patients.

The reasons notwithstanding, ideally, once such a case is made known, the prescription of such drugs should be abolished and their market circulation should take a hit. However, the sales trends of such drugs do not always fall in line with the prediction. Researchers from Cytel Statistical Software and Services, Pune present the trends of 25 banned drugs that have a large adverse drug reaction count. Instead of finding a rapid fall in the reported adverse reactions, the researchers find other intriguing patterns in a General Article on **page 1664**.

The patterns of drug consumption trend-lines can reveal a lot about the nature of the drug and the type of anomaly with its usage. The authors explore the implications of different patterns of adverse drug reactions reported after banning or withdrawing the drugs. The researchers say that such analysis of data on drug reactions can also be used to compare the safety of different drug formulations and demonstrate the technique on anaesthetics that are popularly used.

Flanking the Territory

Strategy for tiger conservation

Nestled at the confluence of the Western and Eastern Ghats, the lush green hills of Bilgiri Rangaswamy Temple (BRT) Tiger Reserve are considered a prominent haven for tigers. Even though much is known about tigers living in the adjoining protected areas, there is little data on the numbers populating this region.

Such gaps in knowledge can hinder India's efforts to revive and conserve its tiger population. To plug this gap, the authorities of the BRT Tiger Reserve collaborated with a team of scientists from a nature conservation foundation and a member of the State Board for Wildlife, Karnataka. The researchers mapped the animals in BRT using camera traps.

Every tiger has a different pattern of stripes on its flanks, between the ribs and thighs. By capturing pictures of the flanks, scientists have amassed vital information regarding the population size and the areas in the reserve that are most likely to be inhabited by the animals.

This knowledge is important from the perspective of designing conservation policies. But data also shows that the BRT Tiger Reserve supports more animals than the adjoining protected areas. Could it be that the population in the BRT Tiger Reserve is the source population of animals flocking to adjacent sites? Read more about the exercise and its implications as listed in a Research Communication on **page 1759**.

Make in India (or not)

Science and technology entrepreneurs

The government is promoting entrepreneurship in the science and technology sector to boost the diaspora of cutting-edge home-grown companies. This move aims to create more jobs and eventually boost the economic growth of the country. However, the choice of becoming an entrepreneur is governed by multiple factors.

To examine the entrepreneurial tendencies in science and technology graduates, scientists from the Indian School of Mines, Dhanbad conducted extensive surveys of students from top Indian institutes in the eastern region. Though a staggering 46% of US students from top institutes consider entrepreneurship a viable alternative to jobs, most Indian students do not show such an overwhelming response. The survey shows that, despite favourable qualities, many students from the Indian Institute of Technology and the National Institute of Technology, from the eastern part of India, are less inclined to take the risks involved in starting a new business.

By studying the extent to which different factors affect the choice of becoming or not becoming an entrepreneur, the government can alter its policies to foster new businesses. On **page 1692**, read a Research Article about the elements that influence the entrepreneurial decision process of Indian students.

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