Phosphorus and climate change

Handful of countries control most of the world's reserves of phosphorus.

This is a major geopolitical concern.

The world's largest reserves are in Morocco and the Western Sahara region.

But here, phosphorus coexists with cadmium, a heavy metal that can accumulate in animal and human kidneys when ingested. Removing cadmium is also an expensive process.

As a result, cadmium laden fertilisers are often applied to the soil, absorbed by crops, and consumed, bioaccumulating in our bodies.

Only six countries have substantial cadmium free phosphorous reserves. Of them, China restricted exports in 2020 and many EU countries no longer buy from Russia. So the market for safe phosphorus has suddenly exploded.

This is one reason why Sri Lanka banned the import of synthetic fertilisers and went organic in 2021, later experiencing a sudden drop in crop yield that precipitated a political crisis.

Today, India is the world's largest importer of phosphorus, most of it from the cadmium laden deposits of West Africa.

Not all crops absorb cadmium at the same rate, but paddy, a staple crop in India, is particularly susceptible.

Indian farmers also apply a lot of fertilisers to paddy. Other grains, such as wheat, barley, and maize also absorb cadmium, just less

(The uptake of cadmium by crops varies based on soil quality, climatic conditions, and the type and variety of crops grown.

Social and cultural factors further affect the intake of cadmium into human bodies and the severity of health effects.)

The phosphorus disposal problem

First, only about a fifth of the phosphorus mined is actually consumed through food. Much of it is lost directly to water bodies as agricultural runoff, due to the excessive application of fertilisers.

Second, most of the phosphorus

that people consume ends up in the sewage

It is then absorbed by the algal blooms that grow in response to the high nutrient supply, and when they decompose, the bacteria that feed on them consume the dissolved oxygen.The result: water bodies become oxygen starved, leading to fish deaths.

The algal blooms are also toxic, causing respiratory issues, nausea, and other ailments to people exposed to them.

Finding phosphorus elsewhere Since much of the phosphorus is not actually taken up by crops, one way to ameliorate the phosphorus paucity is to reduce the use of chemical fertilisers through precision agriculture.

There is increasing interest in closing the phosphorous loop by mining urban sewage to produce high quality phosphorus. Interest in 'circular water economies' has in fact prompted the European Union which has almost no phosphorus reserves of its own to rethink the urban water cycle.

First, source separating toilets almost two thirds of the phosphorus we consume leaves in our urine and the rest in faeces

Second, recycling wastewater and sludge.

The Hindu

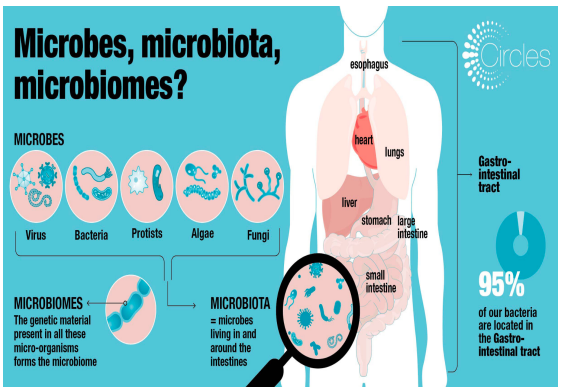
WHO on Salt intake

The estimated mean daily salt intake in India stands at 8 g (8.9 g a day for men and 7.1 g a day for women) against the World Health Organization (WHO) recommendation of up to 5 g daily, a study has found.

The salt intake was significantly higher among men, those in rural areas and overweight and obese respondents.

The Hindu

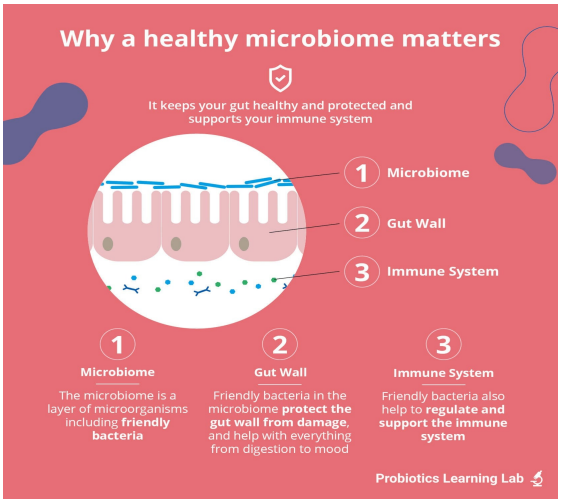
Micro biome



A microbiome is the community of microorganisms that can usually be found living together in any given habitat.

It was defined more precisely in 1988 by Whipps et al. as "a characteristic microbial community occupying a reasonably well-defined habitat which has distinct physio-chemical properties.

Most humans carry a species of bacteria called Clostridium difficile without any disease for life.



It causes problems only in the elderly or in people with compromised immune systems.

The authors acknowledged that diseases have been correlated with changes in the composition of the microbiome and that such changes could exacerbate some diseases (like inflammatory bowel disease)

Two phyla of bacteria firmicutes and bacteroidetes.

The problem with this myth is that the level of phyla is too broad to comment on effects with confidence.

A phylum is a group within a kingdom. In the descending order of classifying organisms, a **kingdom**

comprises different phyla; a phylum comprises classes; then there are orders, families, genuses, and, finally, species. Even within a bacterial species, several strains behave differently, causing the host to manifest different clinical symptoms.

The Hindu

Quiet diplomacy

Indian and Canadian leaders and diplomats have never really engaged; rather, they have talked passed each other. This is occurring today too.

For decades, India has felt that Canada has shown scant respect for its interests, especially on the Khalistan issue. On the other hand, Canada believes that India displays little understanding of its laws and governance system, which prevents it from taking actions that India wants.

These differing perceptions have been accumulating over the years and a trigger was needed to publicly bring them out.

What is Quite diplomacy??

Quite diplomacy means a back door or secret diplomacy in which all sorts of contacts between two players kept secret as the matter is very sensitive and complex

Quiet diplomacy uses back channels and personal contacts established by: Ministers, Department Heads, Corporate Movers and Shakers, major NGOs etc to further the country or organisations goals, this may result in a TV news segment on a topic in a target country, zone or city,

It may result in an invite to a forum or a fund raising dinner etc and at these charity events etc the opinions and goals of the nation or organisation using soft diplomacy gets it's views filtered upwards

towards the target group.

The Hindu

Disease X and climate change

In its latest report released this March, the Intergovernmental Panel on Climate Change (IPCC) delivers a stark warning: climate change heightens the global risk of infectious diseases.

The close relationship between climate and disease is being demonstrated every year.

For instance, the periodicity of mosquito borne disease outbreaks no longer follows expected patterns. Dengue manifests in two to three peaks throughout the year.

Variability in temperature, precipitation, and humidity disrupt disease transmission cycles.

These also alter the distribution of the vectors and animal reservoirs that host the parasite.

Heat has been proven to interfere with the genomic structure of pathogens, changing their infectivity and virulence.

Globally, there is an obsession with the enigmatic “disease X,” but it is the familiar annual cycles of known agents such as influenza, measles, Japanese encephalitis, dengue, diarrhoea among others that will continue to test the public health system.

Climate change is not limited to infectious diseases.

It also exacerbates injuries and deaths from extreme weather events, respiratory and cardiovascular diseases, and mental health issues.

The re-emergence of Nipah in Kerala is a wakeup call, that mere biomedical response to diseases is inadequate.

In the face of a changing climate and the growing threat of infectious diseases, protecting ecosystems, fostering collaboration, and embracing the One Health paradigm

are our best defences.

The road ahead demands concerted efforts, not just to adapt but also to proactively safeguard our planet and its inhabitants.

The WHO declared “Disease X represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown.

The Hindu
