శ్రీ వేపచేదు విద్యా పీఠము
VEPACHEDU EDUCATIONAL FOUNDATION
The Telangana Science Journal

Health and Nutrition

TIACS-subscribe@yahoogroups.com (The Indian American Chemical Society)

Issue 230 Chief Editor: Dr. Sreenivasarao Vepachedu[1]

CONTENTS:

Definition of Health[2]

If alien immigrants are causing distress, removal of those alleged allergenic aliens is not the solution, but developing tolerance and learning to live with immigrants in harmony are.

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[3]" "Health is a dynamic condition resulting from a body's constant adjustment and adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis."

An individual is a specific pattern of consciousness that is co-extensive with its environment, evolving together moving toward an increasing complexity and diversity, manifested in patterns of interaction that occur along continua of time and space through a process called health defined as an expansion of consciousness that synthesizes disease and non-disease recognized by patterns of the interaction between the co-extensive environment and the individual. An understanding of these patterns is basic to an understanding of the health of the individual[4].

Naturally, assessments of health status should include identification and measurement of tolerance, and the treatment and management of health should include promotion of tolerance through education and training[5].

USING MINDFULNESS-BASED STRATEGIES TO TREAT DISTRESS INTOLERANCE AND DISTRESS OVERTOLERANCE

From our perspective, healthy DT requires both conscious awareness of internal states (i.e., sensations, emotion, action urges) and an ability to not automatically and without awareness respond to aversive tension with a change strategy (e.g., avoidance) and/or habitually ignore warning signs of distress. As such, healthy DT requires the ability to discriminate when changing or removing the tension is adaptive versus tolerating or not changing the tension or distress. Thus, from our perspective DI and overly tolerant behaviors are more likely to occur without conscious awareness (i.e., they are automatic and overlearned responses). Both extremes involve avoidance of unwanted contingencies: either the pain of the distress itself when distress intolerant or the pain of expressing distress when overly tolerant. As such, therapeutic strategies that are target avoidance are likely to be useful.

For example, treatment for a disease due to allergy should not be aimed at the removal of allergen but developing tolerance to the allergen. This immunization can only be achieved by exposing the healthy to allergens so that the healthy remain healthy despite the presence of allergens in the environment. Removal of allergens by sanitizing the entire world is impossible. Similarly, immunization against all alleged allergens is also impossible. Therefore, we may take flu shots, but we still may get sick. Learning to live with such unavoidables is life.

If alien immigrants are causing distress, removal of those alleged allergenic aliens is not the solution, but developing tolerance and learning to live with immigrants in harmony are.

Pollution Entrenched Mariana Trench[6]

In clean coastal environments, polychlorinated biphenyl (PCB) levels in aquatic life do not normally exceed one nanogram per gram of tissue. In the most polluted Liao River in China, the PCB level is above 100 nanograms, whereas in the Mariana trench, at 10,250 meters depth the PCB level is 495 nanograms per gram of tissue, at 8,942 meters depth 800 nanograms, and at 7,841 meters depth 1,900 nanograms per gram.

Mariana trench is close to the North Pacific Subtropical Gyre that has amassed enormous quantities of plastics over the years releasing PCBs that disrupt the hormone systems and cause cancer in higher animals.

If Indian/Hindu (from INDUS/Sindhu)/Ancient, It Must Be Unscientific[7]

In India, people don't eat beef and human poop and drink mare's urine like we do in the West[8], but Hindus might drink cow pee[9]! DISGUSTING! HOW UNSCIENTIFIC?! Let us teach them some common sense and science, shall we? Let us give them a dose of Premarin[10] and Fecal Transplant[11] from John's Hopkins[12].

"Panchagavya is a living elixir of many micro-organisms, bacteria, fungi, proteins, carbohydrates, fats, amino acids, vitamins, enzymes, known and unknown growth promoting factors micronutrients trace elements antioxidant and immunity enhancing factors.

Bacteriotherapy: When taken orally by animals and human beings, the living micro-organisms in the Panchagavya stimulate the immune system and produce lot of antibodies against the ingested microorganisms. It acts like vaccine. This response of the body increases the immunity of animals and humans and thus helps to prevent illness and cures disease. It slows down the aging process and restores youthfulness. The other factors present in Panchagavya improve apetite, digestion and assimilation and elimination of toxins in the body. Constipation is totally cured. Thus the animals and humans become hale and healthy with shining hair and skin. The weight gains are impressive[13]."

But some prominent Indian researchers decry what they see as "an attempt to add a veneer of legitimacy to unscientific claims. And others view the new program as the latest instance of a more insidious trend: an attempt by India's government to enlist the nation's science to support its worldview[14]."

Why don't the decrying prominent researchers prove that the medicine doesn't work by performing required clinical trials? These prominent researchers decrying Indian Ancient Medicine as unscientific, while they are at it, should take up the decrying job against the following as well. However, anything and everything is SCIENTIFIC, if it is from the WEST[15], as long as it is not Indian/Hindu/Sindhu/Indus related.

These decrying prominent researchers from India (Hindustan) gladly take the pregnant mare urine and eat poop, without any question. Just call it "Premarin" (Pregnant Mare Urine)[16] and get the seal of FBI on it, just call it "Fecal Transplant[17]," they will gladly drink it or swallow it; like we do in the WEST. But, cow urine, cow dung, give me a break - DISGUSTING! HOW UNSCIENTIFIC[18]?!

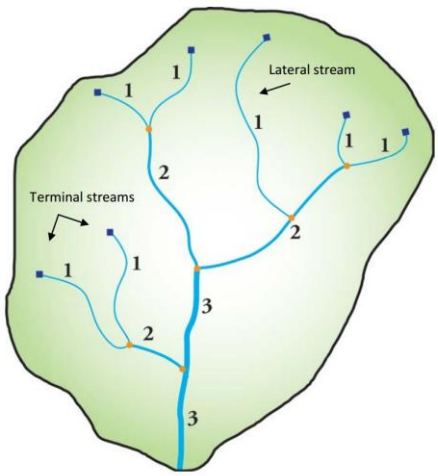
Rescinding Clean Water Laws[19]

Connectivity is a foundational concept in hydrology and freshwater ecology[20]. The structure and function of downstream waters are highly dependent on the constituent materials contributed by and transported through water bodies located elsewhere in the watershed. Most of the materials in a river, including water, sediment, wood, organic matter, nutrients, chemical contaminants, and certain organisms, originate outside of the river, from upstream tributaries, wetlands, or other components of the river system, and are transported to the river by water movement, wind, or other means. Therefore, streams and wetlands fundamentally affect river structure and function by altering transport of various types of materials to the river. This alteration of material transport depends on two key factors:

(1) Connectivity (or isolation) between streams, wetlands, and rivers enables (or prevents) the movement of materials between the system components; and

(2) functions within streams and wetlands that supply, remove, transform, provide refuge for or delayed transport of materials.

Based on the review and synthesis of more than 1,000 publications from the peer-reviewed scientific literature, the available evidence supports three major conclusions:



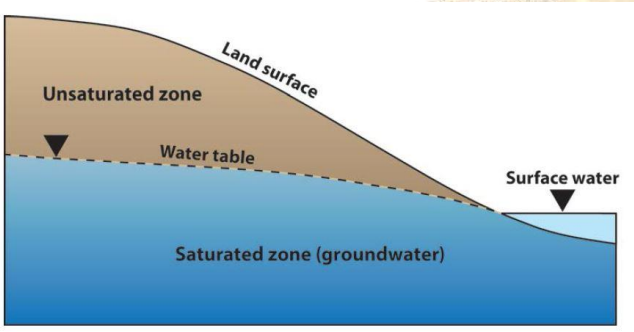
1. The scientific literature demonstrates that streams, individually or cumulatively, exert a strong influence on the character and functioning of downstream waters. All tributary streams, including perennial, intermittent, and ephemeral streams, are physically, chemically, and biologically connected to downstream rivers via channels and associated alluvial deposits where water and other materials are concentrated, mixed, transformed, and transported.

2. Wetlands and open-waters in landscape settings that have bidirectional hydrologic exchanges with streams or rivers (e.g., wetlands and open-waters in riparian areas and floodplains) are physically, chemically, and biologically connected with rivers via the export of channel-forming sediment and woody debris, temporary storage of local groundwater that supports baseflow in rivers, and transport of stored organic matter.

3. Wetlands in landscape settings that lack bidirectional hydrologic exchanges with downstream waters (e.g., many prairie potholes, vernal pools, and playa lakes) provide numerous functions that can benefit downstream water quality and integrity.

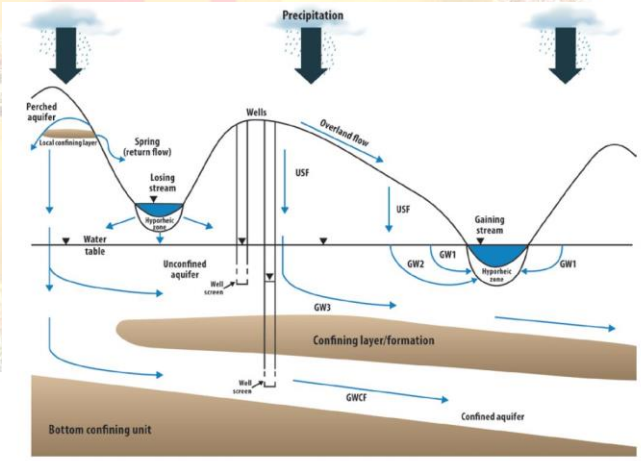
The contribution of material by a particular stream and wetland might be small, but the aggregate contribution by an entire class of streams and wetlands (e.g., all ephemeral streams in the river network) might be substantial.

A generalized example of a river network within its drainage basin. Blue lines illustrate the river network, within the light green area of its drainage basin. Numbers represent Strahler stream order, with streams increasing in order when two streams of equal order join. Channel heads (blue squares) and confluences (orange dots) are also shown.

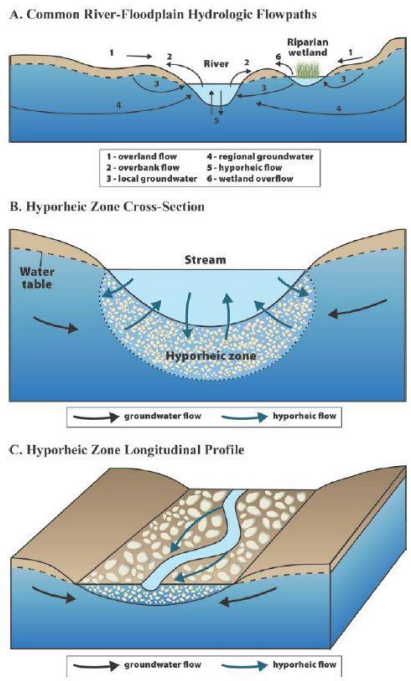


Water moves from drainage basins to river networks, within river networks, and from river networks to drainage basins via numerous hydrologic flowpaths, both above and below ground. Similar flowpaths also occur between riparian/floodplain wetlands, unidirectional wetlands, and other components of river systems. Because groundwater-surface water interactions are essential processes in rivers, knowledge of basic groundwater hydrology is necessary to understand the interaction between surface and subsurface water and its relationship to connectivity within river systems.

Water below the land surface occurs in either the unsaturated or the saturated zone. The upper surface of the saturated zone is the water table. Groundwater and groundwater flow occur in the saturated zone. If a surface water body is connected to the groundwater system, the water table intersects the water body at or near the surface of its shoreline.



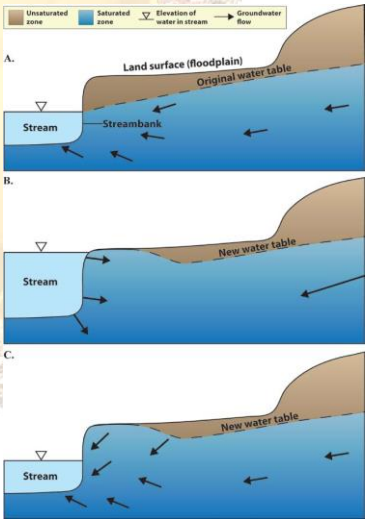
Cross-section showing major hydrologic flowpaths in a stream-watershed system regional in scale. USF = unsaturated flow, GW = groundwater flowpath (saturated flow); GW1, GW2, and GW3 = groundwater flowpaths on varying depth and



length. GW1 represents local groundwater and GW3 represents regional groundwater. GWCF = groundwater flowpath in confined aquifer.

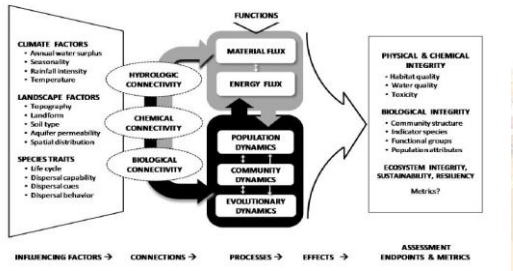
Hyporheic zone flows. (A) Common hydrologic flowpaths by which water flows between drainage basins and river networks. (B) and (C) The three-dimensional process of hyporheic flow, or the movement of water from a river or stream to adjacent alluvium and then back to the river or stream.

The direction and magnitude of surface water-groundwater interactions can dramatically change during large hydrological events, including floods. (A) In a hypothetical stream-floodplain cross-section, groundwater flows from the alluvial aquifer to the stream prior to a major hydrological event. (B) During the bank-full hydrologic event, surface water moves from the stream and becomes groundwater in the alluvial aquifer. (C) After recession of the event water in the stream channel, groundwater that was stored in the alluvial aquifer during the hydrologic event flows back to the stream. This process is called bank storage and can sustain baseflow in streams and rivers after the hydrologic event has ended.



The role of connectivity in maintaining the physical, chemical and biological integrity of water. Climate, landscape, and species' traits (Influencing Factors) interact to form hydrologic, chemical, and biological connections that alter the material and energy fluxes, and biological dynamics (Processes) linking watershed components. The mechanisms by which these linkages affect downstream waters (Functions) modify the timing of transport and the quantity and quality of resources available to downstream communities. The effects of interest here are those associated with the concept of "integrity" in downstream waters. Biomonitoring programs have developed structural metrics for assessing physical habitat, water quality, and biological assemblages as indicators of the physical, chemical, and biological "integrity" of downstream waters (Assessment Endpoints and Metrics). New metrics are needed to monitor the range of downstream effects produced by altered connectivity—the multiple critical linkages between climate, landscape, biodiversity, and ecosystem function—and to assess the long-term sustainability and resilience of aquatic ecosystems.

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act[21]" became the Act's common name with amendments in 1972. The processes and effects of interest here are those relevant to concepts of "chemical, physical, and biological integrity," the objective of the CWA programs and basis for the assessment endpoints and metrics used in local, state, and national biomonitoring programs. The jurisdictional scope of the CWA is 'navigable waters.' The science demonstrates that waters fall along a gradient of chemical, physical, and biological connection to traditional navigable waters, and it is the agencies' task to determine where along that gradient to draw lines of jurisdiction under the CWA. In making this determination, the agencies must rely, not only on the science, but also on their technical expertise and practical experience in implementing the CWA during a period of over 40 years.



Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities). (Clean Water Laws, Regulations, Executive Orders)

For most discharges that will have only minimal adverse effects, a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities. The general permit process eliminates individual review and allows certain activities to proceed with little or no delay, provided that the general or specific conditions for the general permit are met. For example, minor road activities, utility line backfill, and bedding are activities that can be considered for a general permit. States also have a role in Section 404 decisions, through State program general permits, water quality certification, or program assumption.

Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

The national program for greenhouse gas emissions (GHG) and fuel economy standards for light-duty vehicles (passenger cars and trucks) was developed jointly by EPA and the National Highway Traffic Safety Administration (NHTSA).

The standards were established in two phases:

- Phase 1 - Model years 2012 - 2016; and
- Phase 2 - Model years 2017 - 2025.

Together the final standards are projected to:

- Result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO_2) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) (if achieved exclusively through fuel economy improvements);
- Cut 6 billion metric tons of GHG over the lifetimes of the vehicles sold in model years 2012-2025;
- Save families more than $1.7 trillion in fuel costs; and
- Reduce America's dependence on oil by more than 2 million barrels per day in 2025.

On February 28, 2017, President Trump, by an executive order, RESTORING THE RULE OF LAW, FEDERALISM, AND ECONOMIC GROWTH BY REVIEWING THE "WATERS OF THE UNITED STATES" RULE[22], directed the Administrator of the EPA and the Assistant Secretary of the Army for Civil Works to review the final rule entitled "Clean Water Rule: Definition of 'Waters of the United States,'" 80 Fed. Reg. 37054 (June 29, 2015), publish for notice and comment a proposed rule rescinding or revising the rule, as appropriate and consistent with law.

---

[1]*Dr. Rao Vepachedu is the founder and president of Vepachedu Educational Foundation Inc., a 501(c) (3) educational foundation, and the Law Offices of Dr. Vepachedu and co-founder of Exciva. For more information visit: www.linkedin.com/in/vepachedu; http://www.avvo.com/attorneys/60201-il-sreenivasarao-vepachedu-764535.html, and http://www.crm-ip.com/vepachedu.html. Contact: svepachedu@yahoo.com.*

[2] *Definition of Health: https://www.linkedin.com/pulse/definition-health-rao-vepachedu?trk=v- Pollution Entrenched feed&lipi=urn%3Ali%3Apage%3Ad_flagship3_profile_view_base_recent_activity_details_shares%3BdKvY5%2BV5LZNw68OFbq2VbA%3D%3D*

[3] *Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. http://www.medicalnewstoday.com/articles/150999.php*

[4] *Distress Tolerance: Theory, Research, and Clinical Applications, edited by Zvolensky et al.; Margaret Newman - Theory of Health as Expanding Consciousness* http://www.stritch.edu/Library/Doing-Research/Research-by-Subject/Health-Sciences-Nursing-Theorists/Margaret-Newman---Theory-of-Health-as-Expanding-Consciousness/

What Is Health? What Does Good Health Mean? http://www.medicalnewstoday.com/articles/150999.php

[5] *Should the Definition of Health Include a Measure of Tolerance?* http://jamanetwork.com/journals/jama/article-abstract/2601506

[6] *Pollution Entrenched Mariana Trench:* https://www.linkedin.com/pulse/pollution-entrenched-mariana-trench-rao-vepachedu?trk=v-feed&lipi=urn%3Ali%3Apage%3Ad_flagship3_profile_view_base_recent_activity_details_shares%3BA9CGejJlueCGbn0xdfXPUw%3D%3D

[7] *If Indian/Hindu (from INDUS/Sindhu)/Ancient, It Must Be Unscientific:* https://www.linkedin.com/pulse/indianhindu-from-indussindhuancient-must-unscientific-rao-vepachedu?trk=v-feed&lipi=urn%3Ali%3Apage%3Ad_flagship3_profile_view_base_recent_activity_details_shares%3Bb9hpSZjx48wamWzB7vuBuA%3D%3D

[8] *India's Hindus won't eat cows, but might drink:* http://www.usatoday.com/story/news/world/2015/10/08/hindus-india-cows/73567552/

[9] *Chin chin: Urine-drinking Hindu cult believes a warm cup before sunrise straight from a virgin cow heals cancer - and followers are queuing up to try it.* http://www.dailymail.co.uk/news/article-2538520/Urine-drinking-Hindu-cult-believes-warm-cup-sunrise-traight-virgin-cow-heals-cancer-followers-queuing-try-it.html#ixzz4aVZw6nB3

Cow Urine Can Sell for More Than Milk in India: https://www.bloomberg.com/news/articles/2016-07-17/cow-urine-can-sell-for-more-than-milk-in-india

Taking the Pee: Indian men DRINK and BATHE in cow urine to fight diseases and stop spots: http://www.express.co.uk/news/weird/746379/cow-urine-health-benefits-skin-conditions-fight-disease

[10] *The Pregnant Mare Urine (PMU) Industry: What you need to know:* http://www.fundforanimals.org/duchess-sanctuary/about-the-duchess-sanctuary/pregnant-mare-urine.html?referrer=https://www.google.com/

[11] https://www.avma.org/KB/Policies/Pages/Management-of-Mares-Used-in-the-Pregnant-Mare-Urine-Collection-Industry.aspx

[12] Fecal Transplantation (Bacteriotherapy) http://www.hopkinsmedicine.org/gastroenterology_hepatology/clinical_services/advanced_endoscopy/fecal_transplantation.html

Fecal Transplant http://thepowerofpoop.com/epatients/fecal-transplant-instructions/

Fecal Transplantation : https://www.youtube.com/watch?v=KdxHNc9Al44

Fecal Microbial Transplantation: A Treatment for Clostridium Difficile: https://www.youtube.com/watch?v=-nDPjGAGEak

[13] Panchagavya: http://agritech.tnau.ac.in/org_farm/orgfarm_panchakavya.html

[14] Why India's investigating cow urine: http://www.cnn.com/2017/02/15/asia/india-cow-urine-research/index.html

[15] Complementary, Alternative, or Integrative Health: What's In a Name? https://nccih.nih.gov/health/integrative-health

https://nccih.nih.gov/grants

What Exactly Is Alternative Medicine?: http://www.webmd.com/balance/what-is-alternative-medicine#1

[16] Management of Mares Used in the Pregnant Mare Urine (PMU) Collection Industry: https://www.avma.org/KB/Policies/Pages/Management-of-Mares-Used-in-the-Pregnant-Mare-Urine-Collection-Industry.aspx

Pregnant Mares' Urine-PMU cruelty: https://www.youtube.com/watch?v=2I-WYOIx7Ug

[17] The Rise of the Do-It-Yourself Fecal Transplant: http://www.webmd.com/digestive-disorders/news/20151209/diy-fecal-transplant#1

Locations and Directions: http://www.hopkinsmedicine.org/gastroenterology_hepatology/patient_information/appointments_locations/

[18] Probiotics, the Microbiome, and Host Immune Response: https://nccih.nih.gov/training/videolectures/probiotics

[19] Rescinding or Revising Clean Water Law: https://www.linkedin.com/pulse/rescinding-revising-clean-water-laws-rao-vepachedu

[20] Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence: https://www.epa.gov/sites/production/files/2015-03/documents/wous_erd2_sep2013.pdf

Clean Water Rule: Definition of ''Waters of the United States'': https://www.gpo.gov/fdsys/pkg/FR-2015-06-29/pdf/2015-13435.pdf

[21] *Clean Water Act, Section 404 https://www.epa.gov/cwa-404/clean-water-act-section-404*

https://www.epa.gov/sites/production/files/2015-06/documents/clean_water_rule_40_cfr_230_3.pdf

[22] *RESTORING THE RULE OF LAW, FEDERALISM, AND ECONOMIC GROWTH BY REVIEWING THE "WATERS OF THE UNITED STATES" RULE: https://www.whitehouse.gov/the-press-office/2017/02/28/presidential-executive-order-restoring-rule-law-federalism-and-economic*

Clean Water Rule: https://www.epa.gov/cleanwaterrule