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Groundwater and Society

Applications of Geospatial Technology

 Springer

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Chapter 22

Applicability of Geospatial Technology, Weight of Evidence, and Multilayer Perceptron Methods for Groundwater Management: A Geoscientific Study on Birbhum District, West Bengal, India



Niladri Das, Subhasish Sutradhar, Ranajit Ghosh, and Prolay Mondal

Abstract Groundwater resource is one of the prime essential but rapidly declining resources in the present era of so-called development. Rapid industrialization, massive irrigation in agriculture, and other economic and domestic activities accelerate its declining rates. So, most of the researchers and planners keep their concentration for the development of groundwater resources. In geoscience, a large number of methods and techniques are used for the sustainable development of these resources. The aim of the study is to determine groundwater potential zones in one hand, but on the other hand, this study is used to compare two methods, viz., statistical method and machine learning method, and test which one is more reliable in present methodological revolution. Weight of evidence or WoE method is applied here as statistical method, and multilayer perceptron or MLP method is applied here as machine learning method. The result of both methods is to some extent similar, where both methods depict that the eastern part of the study area is more potential than the western part. To run both methods, nine thematic layers have been used as inputs, viz., slope, geology, rainfall, soil texture, pond frequency, drainage density, aquifer thickness, lineament density, and land use/land cover. Two methods have been validated using receiver operating characteristic curve or ROC curve, where ROC curve of WoE method shows the accuracy of 76% and ROC curve of MLP method shows the accuracy of 89%. Therefore, this ROC curves make a conclusion that machine learning method is more reliable and acceptable than the statistical method.

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Geostatistics and Geospatial Technologies for Groundwater Resources in India

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Identification of Groundwater Potential Zones Using Multi-influencing Factors (MIF) Technique: A Geospatial Study on Purba Bardhaman District of India



Niladri Das, Prolay Mondal, Subhasish Sutradhar, and Ranajit Ghosh

Abstract In the present era, the resource crisis and the deterioration of quality of resources is the primary concern of the geographical study. Groundwater resource is the primary depleted resource today due to massive population pressure and indiscriminate use in agriculture. Hence, proper planning and strategies are needed to facilitate groundwater recharge. Therefore, a study, like the delineation of potential groundwater zones, is one of the prime tasks of the geographer, the environmentalist, and the scientist also. Present research involves the assessment of potential groundwater recharge zone by using a popular statistical method, i.e., multi-influencing factors (MIF) along with the application of GIS. Based on the study, three major potential zones have been identified viz. high potential zone, which comprises 20.65% area, moderate potential zone with 45.61% area, and low potential zone covering 33.74% area out of the total geographical area of the Purba Bardhaman district of West Bengal, India. High potential zones are predominantly observed in the extreme west and east of the test area as well as along the river course. Moreover, low potential zones are found in the middle and the southern part of this concerned region. In the end, validation of these potential zones has been made by taking actual yield from the field observation and comparing it with the prepared potential model. Therefore, this kind of study for the delineation of potential groundwater zones is very much relevant for the improvement of groundwater status in the era of the water crisis. The validation of this model proves that this model is 73.17% accurate for the identification of the potential groundwater zones.

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ROLE OF NSS IN
**COVID-19 PANDEMIC
IN INDIA**

DR. ALAK KUMAR CHAKRABARTI
PROF. SUBRATA SAR
PROF. GOURAB DAS

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Chapter 7

COVID-19: A Global Scientific Challenge About Human Race and Activity of National Service Scheme in the Pandemic Situation

Anirban Paul, Alokesh Das

Abstract:

COVID-19 is a viral disease caused by the novel corona virus (SARS-CoV-2), outbreaks from Wuhan city of China in December, 2019 and spread worldwide within a very short period. Novel corona virus infects mainly in the respiratory system of human and showing a vast range of symptoms such as fever, cough, shortness of breath, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, runny nose, nausea or vomiting, diarrhoea etc. This spherical, enveloped, positive sense ssRNA corona virus has numerous long spikes with high affinity of binding with the host cell membrane derive receptor- ACE2. It can infect the respiratory cells of humans by entering its RNA within cell cytoplasm and replicate many fold by using the host protein synthesis machinery, and exit through the process of exocytosis. The maximum rate of infection and transmission is mainly due to its structural specificity which gives its novel characters. Several preventive measures including social cultural practices and vaccination programme have already been going on. In this current pandemic situation of COVID-19, National Service Scheme (NSS) units of various educational institutions within India have played a great role in the improvement of awareness for civilians. NSS units convey their message through virtual and non-virtual modes by organizing several awareness programme viz. quiz, webinar, essay writing,

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Plant based Edible Vaccines: A promising futuristic approach of Biotechnology**Anirban Paul**

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Abstract

Plant derived edible, bio-friendly, needle-free, cost effective oral food vaccines are the alternative substitute of large scale immunization in developing countries. Desire genes of specific antigens from infectious microbes are cloned and expressed within transgenic plants to develop edible vaccines through plant biotechnology. Edible vaccines provide mucosal as well as systemic immunity, which exhibited superiority from traditional injectable vaccines regarding preservation, transportation and vaccination. Various fruits (banana, papaya), vegetables (spinach, lettuce, tomato, potato), cereals (rice, wheat) are used as host plants for production of edible vaccines; and those are useful for diarrhoea, hepatitis B, measles, rabies, rotavirus infection, malaria etc. Edible vaccine against COVID-19 is under trial. Though edible vaccines have some limitations but this technology can bring more secure, easy and effective immunization in near future.

Keywords: Edible vaccines, Biotechnology, Immunization, Transgenic plants

INTRODUCTION

Vaccines are the *in vitro* biological preparation that improves immunity to a specific disease. Vaccines are agents that stimulate the body's immune system to recognize the antigen. Generally vaccine

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NEOLIBERALISM IN THE EMERGING ECONOMY OF INDIA

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FOREIGN DIRECT INVESTMENT AND PRODUCTIVITY SPILLOVERS

Evidence from the Indian pharmaceutical industry

Labanya Pal

Introduction

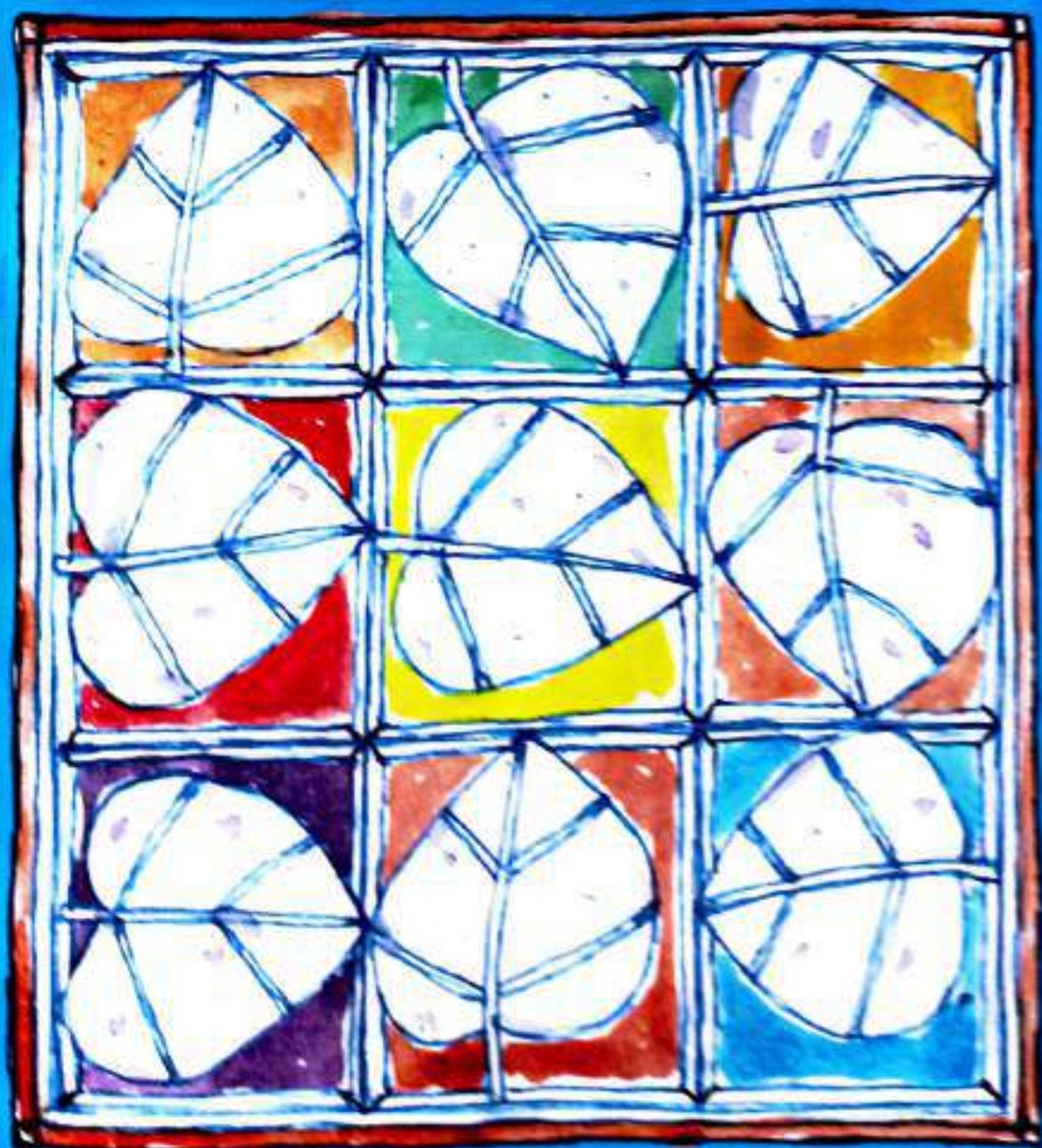
Foreign direct investment (FDI) is considered an important factor for the economic development of a country irrespective of whether the country is developed or developing. FDI may provide direct and indirect benefits to the recipient country. The direct benefits are often in the form of employment and investment in capital, while the indirect benefits are the FDI spillovers and externalities from the presence of multinational corporations (MNCs). Through various non-market mechanisms of FDI, indirect benefits may be received in the form of an increase in the efficiency or productivity of domestic firms.

On the one hand, through the investment of foreign capital, FDI fills a country's savings–investment gap, thereby raising the growth rate of the host country. On the other hand, it leads to productivity gains for domestic firms through the transfer of knowledge and the adoption of improved techniques. It is generally accepted that multinational corporations are more productive and efficient than their domestic counterparts. Hence, MNCs are allowed to establish subsidiaries in host countries and transfer knowledge to these subsidiaries. Since the transfer of knowledge, to some extent possesses the character of public goods, it may spread over the entire economy through many channels such as labour mobility, demonstration effect, linkage, etc., leading to productivity gains for domestic firms. These productivity gains are generally known as productivity spillovers from FDI.

This is a study of productivity spillovers from FDI in the pharmaceutical industry in India. The pharmaceutical industry has been chosen to study the spillover effect from FDI because it has been one of the most attracted FDI inflow industries¹ since 2000. The pharmaceutical industry is a highly technological and knowledge-intensive industry. After 1991, the Government of India implemented several policies to promote and strengthen the domestic industry. The Indian government's policies on FDI firms in the pharmaceutical industry not only provide financial resources but are also a source of technical, managerial and organizational knowledge. The knowledge that is brought by FDI firms may

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উজ্জ্বল গঙ্গোপাধ্যায়

দুই বাংলায় বিশেষ মর্যাদা সম্পন্ন কবি কাজী নজরুল ইসলামের জন্ম সাল, মাস, তারিখ, বার ও সময় নিয়ে নানা মতবিরোধ থাকলেও, আমরা মেনে নিয়েছি ১৩০৬ বঙ্গাব্দের ১১ জ্যৈষ্ঠ, ১৮৯৯ খ্রীস্টাব্দের ২৪ মে মঙ্গলবার তাঁর জন্ম হয়। বর্তমান পশ্চিম-বর্ধমান জেলার আসানসোল মহকুমার জামুরিয়া থানার চুরুলিয়া গ্রাম নজরুলের জন্মস্থান। রাজা নরোসুন্দের গড় নজরুলের বাড়ির পূর্বদিকে, আর হাজী পালোয়ান নামক এক ফকিরের খনন করা পীর পুকুর নজরুলের বাড়ির দক্ষিণদিকে অবস্থিত। পুকুর পাড়েই একটি ছোট মসজিদ। হাজী পালোয়ানের কবর ও মসজিদের তত্ত্বাবধায়ক বংশানুক্রমে ছিলেন কবির পিতামহ ও পিতা। তাঁর বাবা কাজী ফকির আহমেদের খুবই পাশা খেলার নেশা ছিল। এই আলসোই জমিজমা বিক্রি হয়ে যায়। নজরুলের বাবা ফকির আহমেদের দুই স্ত্রী, পুত্র সাতজন ও কন্যা দু জন। দ্বিতীয়া স্ত্রী জাহেদা খাতুনের সন্তান হলেন কাজী সাহেবজান, কাজী নজরুল, কাজী আলি হোসেন এবং কন্যা উম্মে কুলসুম। নজরুলের ডাক নাম রাখা হয় দুখু মিঞা। ১৩১৪ বঙ্গাব্দের (১৯০৮) ৭ চৈত্র নজরুলের মাত্র আট বছর বয়সে তাঁর পিতা ফকির আহমেদ মারা যান।

চুরুলিয়া বিনোদবিহারী চট্টোপাধ্যায়ের পাঠশালায় কিছুদিন যাওয়া আসা করার পর নজরুল ১৯০৫ খ্রীস্টাব্দে ৬ বছর বয়সে বাড়ির পাশে মক্তবে ভর্তি হন। ১৯০৯ খ্রীস্টাব্দে ১০ বছর বয়সে তিনি মক্তব থেকে নিম্ন প্রাথমিক পরীক্ষায় উত্তীর্ণ হন। ১৯১০ খ্রীস্টাব্দে ঐ বয়সেই তিনি মক্তবে ১ বছর অবৈতনিক শিক্ষকতা করেন। ১৯১১ খ্রীস্টাব্দে যষ্ঠ শ্রেণীর পরীক্ষার পর তিনি চুরুলিয়া ফিরে আসেন। নানা কারণে ১৯১২-১৩ শিক্ষাবর্ষটি নজরুলের নষ্ট হয়, সম্ভবতঃ আর্থিক কারণেই। এই সময় তিনি বাসুদেবের লেটোর দলে গান পালা ইত্যাদি লিখতেন ও সুর দিতেন। নজরুলের গানের মুগ্ধ হয়ে এক নেটিভ ক্রিশ্চান রেলের গার্ড তাকে একটি চাকরি দেন। কাজ ছিল গার্ডের প্রসাদপুরের বাংলা



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BUSINESS, ECONOMICS,
AND SOCIETY**

EDITED BY

Dr. Arup Kumar Sarkar
Biswajyoti Doley, Renu Kumari
Jasneet Kaur, Pooja Bector
Ajay Chandel, Vijay Vishwakarma

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Key words: Covid-19, Consumer behavior, Traditional business, e-business.

Introduction

The coronavirus pandemic has completely changed the world as we know it. Human beings are getting infected rapidly with this highly contagious new coronavirus, it effects physical and mental health of almost everyone and snatches away human lives on a large scale worldwide. Preventive measures such as border closures, trade and travel restrictions social distancing create a barrier to all. People are unable to access markets for buying and selling their produces. Due to restrictions; disruption in supply chain created an imbalance between demand and supply of goods and services; as a result habitual life of individuals are interrupted; people are living differently, buying differently and in many ways, thinking differently.

The relation between business and consumer is two sided; consumers respond to business techniques, and business responds to consumers' test, habits and tendencies etc. The business side is concentrating on generating revenue, while the customer side wish to take good buying decisions. Consumers throughout the globe looking at product, services through a new lens, how and where we shop, how we live and work. Change in consumer behavior led to change in doing business. Producers are reconstructing products and services as per consumer demand and requirements in real time.

Years ago, if someone started a business, it was naturally assumed that he had rented or purchase a space, required a phone and electricity connection to carry on business activities. Then come the internet and gradually changed the way of doing business; after this change we don't even have to leave our house to start a business. From that time traditional business facing challenges from increasing competition, technological change and the ability to cope with swiftly changing consumer demand. Now consumer are expecting to have a virtual platforms which provide information so

CHAPTER 14

CONTEMPORARY ISSUES IN E-BUSINESS AND TRADITIONAL BUSINESS

Surya Prakash Das

ABSTRACT

The main objective of the study was to review how covid pandemic bring change in consumer behavior and triggered change in e-business and traditional business activities, which are conflicting in nature. The pandemic has changed everything, how we look and think. The coronavirus is highly contagious in nature and spread rapidly from one another. It effects our physical and mental health and snatches away human lives dramatically. But this is not the first time; there has been a long history of fear of pandemic breakouts. Almost every time it exposed our preparedness and taught us that future is unpredictable. We in general more centered on convenience rather than what might happen in future. Behavioral change due to pandemic seem to be related with personal protection like use of face masks, hand sanitizers and preventive measures such as border closures, trade and travel restrictions and social distancing create a barrier to all. In this volatile situation very few businesses is able to keep their existence and roll their wheel. The pandemic has changed the habitual life of individuals and put impact on business as well as on consumer behavior. This is a two sided relationship, with consumers responding to business move, and business responding to consumer tendency. Traditional business and e-business clash with each other to grab the attention of consumers because no business that can do without customers, every business activity is done with an aim to impressing customer. Customers are the king in business.

e-business. But we must remember that e-business have its own pros and cons too.

- Local traditional business collaborate with e-business giants and work together to fulfil the demand of local customers. Big e-business are providing platforms to local traditional small business so that local area customers can discover faster local traditional business. To fit in the large e-business's umbrella traditional business require its own physical shop in any part of the country and should be able to arrange for delivering orders on the same day or next day to the local area customers through own delivery partners or have the ability to provide additional services like demonstration or installation, though that is not mandatory (e.g. 'Local shops on Amazon' is a program that lets you register your physical store on Amazon.in) All these measures may reduce the conflict between e-business and traditional business.

Conclusion

The tangle of covid pandemic accelerated the use of technology which comes long before corona virus outbreak which gave leverage to e-business but this phenomena brought new digital habits, which urge to restructure our business to meet the new digital expectations that have emerged. But the traditional business is still well liked where there is no reachability for the delivery of goods and services. Some people come from uneducated society they cannot access or afford digital appliances, there traditional business is a popular form of business. So it is prevailing that both the business are popular in society and plays an important role in economy. Now due to the pandemic dramatically changed tech savvy consumer behaviour and their expectations. To cope with the situation a new hybrid business model came up, which consists of the characteristics of both, traditional business as well as e-business.

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VOL-II

EMERGING TRENDS IN MULTIDISCIPLINARY SUBJECTS FOR RESEARCH



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ector of India faces steep down fall followed by the manufacturing sector and agricultural sector. Impact on agricultural sector is low as compared to other sectors. More or less each sector having potential to attract foreign investment.

Government has taken initiatives and inject financial assistance for recovery of the sectors. Gradually the wheel of economic development is back on track after unlocking took place. With the help of inclusion of technologies, innovation and digitization in product, process and services India will rapidly achieve its dreams.

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4

SECTORAL IMPACT OF COVID PANDEMIC ON INDIAN ECONOMY & EMERGING TRENDS

SURYA PRAKASH DAS

ABSTRACT

The main objective of the study was to review the sectoral impact of covid pandemic on Indian economy and understanding the inter-relation and chain reaction effects of coronavirus outbreak among the sectors, paralyzed the whole economy. The measures taken to revive the sectors and what are the emerging trends in each sector. Human beings are getting infected rapidly with this highly contagious new coronavirus, it effects physical and mental health of almost everyone and snatches away human lives on a large scale worldwide. Preventive measures such as border closures, trade and travel restrictions social distancing create a barrier to all workers such as- agricultural workers, food processing workers, transport, retail and other service providers. People are at a risk of falling into deep poverty. Almost every country was bound to reduce their economic activities; disruption in supply chain, and so many other factors, which was slowing down the pace of global economy. The pandemic has changed the habitual life of individuals, business were thrown into volatile environment. The pandemic exposed our preparedness and strength and taught us that future is unpredictable. Gradually we are getting accustomed with the change and we will find out new ways of doing businesses. Sometime it is necessary to take one step backward to take two steps forward.

Keywords:- Covid-19, Impact, Primary, Secondary, Tertiary, Recovery, Trends

INTRODUCTION

Business and Environment are inseparable. The surrounding situation within which Business has to perform its activity is known as Business environment. It includes so many factors (Social, Cultural, Technical, Legal, Economical, Political etc.). All these dynamic, controllable and uncontrollable factors shape a complex and unpredictable situation for business.

Business collect information, technology, and resources from environment and transforms into goods and services for the environment.

Business has to cope with changing environment and its requirements to maintain the business and environment relationship by making change in operations.

Based on these operations business can be classified in to following sectors

Primary sector, Secondary sector and Tertiary sector. We can further extend to a sector which is related to intellectual activities like education.

Business activities come under primary sector which includes Agriculture, Fishing, Mining and all natural goods from the environment.

Business activities like processing food, manufacturing and construction etc. which comes under secondary sector; collect raw materials from the primary sector and turn it into finished goods.

Tertiary sector includes business activities related to services like transportation, health, retail, financial, entertainment etc.

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Effects of COVID-19 Pandemic in daily routine life and mental health

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Coronaviruses are a large family of viruses which may cause illness in animals and humans. In humans, several coronaviruses are known to cause respiratory infections ranging from cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease COVID-19. COVID-19 is pandemic affecting many countries globally. Coronaviruses are zoonotic origin followed by human to human transmission. Compared to diseases caused by previously known human CoVs, COVID-19 shows a less severe pathogenesis but higher transmission competence, as is evident from the continuously increasing number of confirmed cases. COVID-19 (Coronavirus) has affected daily routine of our life and due to its higher transmission rate, most of countries are going to lock down. This new virus disrupted the global economy. This pandemic has affected thousands of people, who are either sick or are being killed due to the spread of this disease. This, being a new viral disease affecting humans for the first time, vaccines are not yet available. This virus is spreading exponentially region wise. Countries are banning gatherings of people to the spread and break the exponential curve. Many countries are locking their population and enforcing strict quarantine to control the spread of the havoc of this highly communicable disease.

COVID-19 has rapidly affected our day-to-day life (health, social and economy), businesses, disrupted the world trade and movements. This virus creates significant knock-on effects on the daily life of citizens as well as about the global economy.

People are missing to meet their friends, socializing, dining outside, going to mall, outing; especially school and college going students are very much affected. These situations create the disturbance of mental health. Children are likely to be

experiencing worry, anxiety and fear, and this can include the types of fears that are very similar to those experienced by adults, such as a fear of dying, a fear of their relatives dying, or a fear of what it means to receive medical treatment. If schools have closed as part of necessary measures, then children may no longer have that sense of structure and stimulation that is provided by that environment, and now they have less opportunity to be with their friends and get that social support that is essential for good mental well-being.

Simple strategies that can address this can include giving young people the love and attention that they need to resolve their fears, and being honest with children, explaining what is happening in a way that they can understand, even if they are young. Older people and also those with underlying health conditions, having been identified as more vulnerable to COVID-19. They are extremely frightening. The psychological effects of these populations are anxiety, mental stress, irritability etc. and also, they are feeling very angry. And some older people may already be socially isolated and experiencing loneliness which can worsen mental health. On a positive note, there are many things that older people can initiate themselves or with the support of a carer, if needed, to protect their mental health at this time. These include many of the strategies that are doing physical activity, creating new ones, and engaging in activities which give a sense of achievement. Maintaining social connections is also important. Some older people may be familiar with digital methods and others may need guidance in how to use them. It is advised people to see and remain in touch with their family and get sufficient sleep to mitigate mental health difficulties under stressful circumstances. Once again, the mental health and psychosocial support services and other services that are relevant to this population must remain available at this time.

Drastic disruption to our normal lives has become the immense challenge in the times of pandemic. The daily normal routine of every individual is disrupted in this situation. Job loss, work from home, online education, increased use of technology, decreased physical activity, etc. has changed the normal lifestyle. These situations have caused different range of emotional reactions like distress, anxiousness.

insecurity, confusion, fear, isolation etc. and unhealthy behavior which is deteriorating our mental health. It has become necessary to restore our healthy physical and mental health and normal standard daily routine. It has also become necessary to overcome the effects of pandemic situation to get normal lifestyle. It has also become essential to maintain the stability and deal with the uncertainty. Having a routine not only helps us with health benefits, it also lays out the guide for our day which can help us become more productive. Making a routine can be challenging sometimes because the thought pattern and behavior is practiced enough i.e., our brain adapt it and turn it to an automatic process which can also be called habit. It is not so easy process that one can do it easily.

Fortunately, there are lots of things that we can do to look after our own mental health and to help others who may need some extra support and care.

Here are some tips and advice that will find useful.

Keep informed: Follow trusted news channels and keep up-to-date with latest news. It is also helpful to avoid fake news from social media.

Have a routine : Keep up with daily routines as far as possible, or make new ones.

- Wake up and go to bed at similar times every day
- Get plenty of sleep
- Keep up with personal hygiene
- Eat healthy meals at regular times
- Exercise regularly
- Allocate time for working and time for resting
- Continue with routine preventive measures (such as vaccinations, cancer screening etc.) as recommended by your health provider
- Make time for doing things you enjoy

Minimize newsfeeds : Try to reduce how much you watch, read or listen to news that makes you feel anxious or distressed. Seek the latest information at specific times of the day, once or twice a day if needed.

Importance of social contact: If movements are restricted, keep in regular contact with close people by telephone or online channels.

Alcohol and drug use: Try to reduce or avoid using alcohol and drug. There is no evidence of any protective effect of drinking alcohol for viral or other infections. In fact, the opposite is true as the harmful use of alcohol is associated with increased risk of infections.

Reduce screening time: Be aware of how much time spend in front of a screen everyday and take regular breaks from on-screen activities.

Get vaccinated with a COVID vaccine when available.

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Role of Specific and Non-Specific Drug Binding in Arterial Drug Transport within Atherosclerotic Plaque: A Computational Model

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Abstract

Until the present time, atherosclerosis, was most commonly thought of an arterial collection of cholesterol which gets complicated by the accumulation of SMC^s (smooth muscle cells). Based on this concept, endothelial damage causes platelet accumulation and release of platelet factors generate the proliferation of SMC within artery intima. Local delivery of drug has brought change in medicine, however it's not clear that how does the physicochemical properties and kinetics of drug delivery determines the drug efficacy. The main goal of resent study is to explore the coactions between dose of drug, reaction, diffusion and specific as well as non-specific drug binding in arterial tissue insertion and reaction. A coupled three-phase two-layer computational scheme has been introduced that balances dose, reaction, diffusion and saturable drug binding parameters into destination arterial tissues. A two-dimensional drug delivery model has been introduced and all the governing equations and physiological boundary conditions are solved numerically by finite-difference scheme. In this present numerical simulation, the main focus is on assessing the effects of saturable binding on the transport of drug within arterial tissues and its retention which is determined by the binding potential, the equilibrium dissociation constant, tissue binding capacity, plaque thickness and Peclet number of plaque region in drug-eluting stent based delivery. Our simulation reveals that the plaque behaves like a barrier in two types of bindings (specific and non-specific) process and there is an inverse relationship between the bound drug concentration and plaque thickness. The results also indicate that the drug gradually binds to specific and extracellular matrix sites until the saturation of binding sites takes place.

Keywords: Drug-eluting stent; Free drug; Bound drug; Convection-diffusion-reaction; Computational model.

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Some Reflections on LP and Mahali

Susanta Kumar Bardhan

Abstract

Language use in different situations and contexts and the roles played by languages in different social contexts during communications are the main thrust areas of the present field of study. In the words of Fishman (1972), the founder of this field, the core issue coming under this is: "Who speaks what language to whom, when and where?" Other also add '- - why' along with the previous. Language use is a domain specific and is systematically carried out its user keeping in mind the specific domains, the target group, context or situation and other social factors.

Mahali is an Austro-Asiatic tribal language and its native speakers, also called Mahali, live not in one particular area but in different parts of Indian states and Bangladesh in small numbers. As a result, the Mahali tribal community is not an organized one. Mostly living sporadically in small villages, Mahalis face several crises in terms of linguistics and culture which hinder their socio-economic, socio-academic and socio-cultural prosperity. The present paper is an attempt to address the issues relating to means and ways of the Mahali language planning which is badly needed for the development of the language and community as well.

Keywords: linguistics, language planning, tribe, bilingual, multilingual etc.

Introduction

History of language and its speakers has shown us that the dominating linguistic communities in terms of economy, literacy, arts and culture have survived and ruled the most part of the world. In the face of competition so many small linguistic communities along with their languages and cultures have been and are being lost in the abyss of (un)written history. Same fate is now waiting for the Mahali language spoken in India and Bangladesh. The present paper, as the title suggests, is a humble but sincere attempt on the part of the present