

Anthropogenic Drives of Emerging Infectious Diseases and Possible Mitigation Approaches

Pinak Dutta¹ and Mita Dutta*²

¹ *Bejoy Narayan Mahavidyalaya, Itachuna, Hooghly 712 147, West Bengal, India*

² *Sreegopal Banerjee College, Bagati, Magra, Hooghly 712 148, West Bengal, India*

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ABSTRACT

The last decade has seen a surge of emergence of zoonotic diseases leading to disastrous consequences. The outbreak of these zoonoses are due to immense human pressure leading to biodiversity loss, change of human dietary pattern and illegal wildlife trade to name a few. Globally scientists, politicians and economists are trying to tackle the problem, but more unified efforts are required. Keeping these efforts confined to the elite community will be of no use unless the common people, who account for the greater part of the population, are made aware of the global scenario.

Key words: Zoonoses, Anthropogenic drives, Biodiversity loss, Mitigation approaches

Introduction

Emerging infectious diseases (EID) are those which appear for the first time in a certain population, or that are already present but a record rapid increase in number or geographical spread. So an emerging disease may be a known infectious disease appearing in a new species or in a new geographical area or, an unknown infectious disease identified for the first time. About 70% of all EIDs are zoonotic (Morse *et al.*, 2012). Zoonotic diseases are shared between humans and animals i.e., they are transmitted from other animals to humans. The causative agent can be various viruses, bacteria, fungi, other organisms or even abnormal protein agents known as prions. There are over 200 zoonoses recorded by World Health Organization (WHO). These pose maximum threat to humankind causing billions to be infected and millions of death and irreparable damage to economy.

Transmission of zoonoses to humans

The transmission of pathogens from one species to a new one is scientifically called a spillover (Kreuder *et al.*, 2015). This can occur in many ways.

It may be direct contact, like coming in contact with saliva, urine, feces, mucous, blood of an infected animal. Petting, touching animals, their bites, and scratches may be example of direct contact.

Indirect contact with areas where animals live (pet habitats, chicken coops, aquariums, barns), roam and surfaces or objects contaminated by them may also cause transmission.

Transmission may be vector borne like being bitten by a tick or insect like mosquito or flea, which has bitten an infected animal. The mode of transmission is often food and water borne. Consuming undercooked food from animal and plant source that has been contaminated by infected animals may cause transmission.