



Preface

The world witnessed the impact of an emerging infectious disease when it experienced the outbreak of severe acute respiratory syndrome (SARS) in 2003. Although the number of affected people was less than ten thousand and the death toll was about 800 worldwide – ar less than those of common infectious diseases such as diarrheal diseases, respiratory infections, tuberculosis, malaria and acquired immunodeficiency syndrome (AIDS) – the entire globe was threatened by this emerging disease. Economic losses in Southeast Asia were estimated to be about 2% of the gross domestic growth of the region. The World Health Organization (WHO) amended the International Health Regulation in 2005 based on lessons learned during the outbreak of SARS and the amended regulation entered into force last year. The world human population keeps growing and is expected to reach nine billion by the year 2042. In order to provide these people with sufficient nutrition, anthropogenic alterations of landscapes by such activities as clearing rainforests, building roads, constructing dams and irrigating fields seem inevitable. These anthropogenic factors are a major driving force behind emergence of infectious diseases new to human beings.

In this special issue of *Global Environmental Research*, several outstanding research scientists review the present situation of infectious diseases from their respective points of view. The potential roles of zoonotic diseases in the emergence of novel infectious diseases is first reviewed by Dr. Akio Yamada, then Professors Hiroshi Kida and Toshihiro Ito overview the current situation of H5N1 avian influenza in Japan and the rest of the world. Professor Ikuo Takashima *et al.* and Dr. Mutsuo Kobayashi *et al.* summarize and discuss the epidemiology and virology of West Nile fever and its vector mosquitoes. Dr. Ichiro Kurane *et al.* discusses whether climate change affects the geographical distribution of arthropod-borne infectious diseases at the global and local levels. Possible involvement of migratory birds in the spread of infectious diseases is discussed by Dr. Noriyuki Yamaguchi and Prof. Hiroyoshi Higuchi. Professor Yasuhiro Yoshikawa reviews legislative measures currently implemented in Japan to confront infectious diseases with special emphasis on zoonotic diseases. Finally, Dr. Tomimasa Sunagawa discusses future strategies in the fight against the threats of emerging infectious diseases. Since microbes are constituents of the ecosystem, although some of them are pathogenic to other organisms including humans, it is important to know how they are maintained in the environment. I hope that this issue will help readers understand how humans, animals and microbes interact with each other in the environment and how important it is to have cooperation among different disciplines to prepare for the emergence of infectious diseases that will impose great threats to humans.

Akio YAMADA
Hiroyoshi HIGUCHI