

1. Introduction

The 21st century is anticipated as the century of environment. In this regard, it is crucial to remedy pollution and conserve resources, particular in respect with aqueous ecology, for fostering a healthy environment. Confronting this issue, which concerns not just Japan but the entire globe, will require creation of an international network. Japan has so far yielded substantial results from its various conservation projects, including those promoted through the ODA, although any project targeted at a single specific country and its results usually fail to be generalized more widely. Consequently, demand grew greatly for a versatile anti-eutrophication manual/handbook suitable for lakes situated in tropical, subtropical, temperate, and frigid zones, which covers water environment safety, qualitative and quantitative preservation of water resources, as well as the characteristics of, and control measures for algae bloom. In other words, such a handbook should serve the vital function as the foundation for Japan to provide international environmental support to developing nations. With this in mind, those in the national and local governments, industry, NGOs and other organizations, who deal with overseas trainees and technical transfer for environmental remediation and conservation, could learn about (1) the past, present, and future of eutrophication, (2) eutrophication-related past developments and future directions of administration, organization/systems, control measures, monitoring, and standard setting, and (3) ideal systems utilization, regulation standards, and measuring/monitoring methods concerning eutrophication control, both domestically and globally, in order to implement practical and specific anti-eutrophication measures.

Right now at this moment, various lakes around the globe are suffering from the critical bloom of hazardous algae that generate microcystins and other substances more toxic than potassium cyanide. For this reason, the World Health Organization (WHO) boosted its efforts to control microcystin by designating it as one of the organic constituents regulated by its Guidelines for Drinking Water Quality. This example is sufficient to understand the importance of this Technology Transfer Handbook on Eutrophication Control of Lakes.

Based on the above background, the “Technology Transfer Handbook on Eutrophication Control of Lakes” covers the mechanism of lake eutrophication and its environmental impact, the present situation of lake eutrophication and its control measures both in Japan and in developing nations, new global challenges concerning lakes, the Lake Kasumigaura Cleanup Project as the core of the eutrophication control policy in Japan, proper transfer projects for Japanese technologies, aqueous environment remediation technology applicable to developing nations, administrative measures to arrest eutrophication, techniques and hints for lake survey, and future challenges and prospects.