S−20 Contribution to Creating Safe Society as An Environmental Leader

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1. Nurturing environmental leaders: the urgent need for developing countries

In developing countries seeking to expand economic activities, consideration for environmental conservation often receives a low priority. Many remaining environmental problems such as securing water supply, improving the aquatic environment, or improving infrastructure for waste disposal and recycling have raised serious concerns about sustainable development and environmental protection[1)]. Vietnam is considered as the most vibrant economy in the Southeast Asian region and is on its way to accelerate industrialization and modernization, which is the common economic development target for every locality to make effort. In achieving this target, it is very important to comply with basic and unprejudiced principles on sustainable development[2)]. However, rapid demographic growth, urbanization, industrialization and infrastructure development in recent decades have made Vietnam facing serious environmental problems: water, air and solid waste pollution and depletion of natural resources. In addition, lack of human resources with expertise and skills to resolve environmental problems has hindered progress of Vietnam in addressing its environmental problems. Therefore, nurturing "environmental leaders" with specialized knowledge and problem solving skills are urgently demanded in Vietnam as well as in Asian developing countries. To address these problems, international leader training program for sustainable use of water and resources (SUW) provides further training course to produce environmental leaders[1)]. Students joined the courses that were equipped with various environment-related knowledge of science, technologies, policies, practical skills on water and resources recycling[1)]. Through this course, students have obtained their necessary skills to become an environmental leader, who can make their own way to grasping the causes and finding out the solutions to solve environmental problems in their countries

2. Definition of an environmental leader

Environmental leaders who I think have the following abilities:

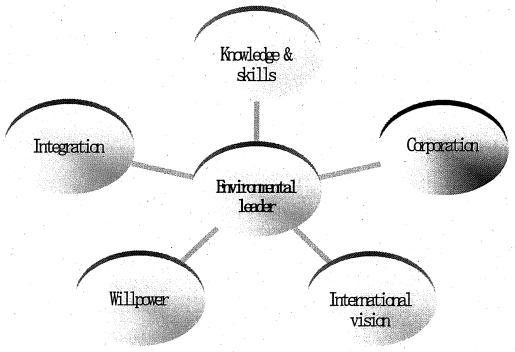

Fig. 1. Definition of an environmental leader

(a) Knowledge and skills: abundant environmental knowledge to grasp the causes and effects on various environmental issues; expertise and skills to solve environmental problems.
(b) Corporation: enhance the leadership and coordination abilities.
(c) International vision: build-up a huge human network in environmental protection field
(d) Willpower: strong, steadfast, self-effacing and rigorous
(e) Integration: definite objective and strategy; efficiency use of manpower and technology resources

3. How to become environmental leaders

Participating in the SUW program, I have actively engaged in the following activities:

(1) Lectures and seminars

As a student of SUW program, I have learned specialized environment-related knowledge of sciences, technologies and policies from professors in University (Univ) of Japan and guest lectures from abroad. For instance, the "Environmental Issues in Asia" course has given me deeper understanding of environmental problems in Asia through discussions with officials of aid recipient bodies of developing countries and officials of donor agencies in Japan; the "Sustainable Sanitary Engineering" course has provided me knowledge about sustainable sanitary engineering for developing countries and offered

some appropriate solutions to be applied in their respective countries[1].

Fig.2. Seminar "International cooperation and development aid" and waste water treatment facility tour

Numerous seminars and field trips were introduced such as study trip in the Ideura purification plant, recycling plants, electric and water plants, Minamata workshop, where I had chance to work with the environmental specialists in Kitakyushu government (waterworks bureau, health and wealth bureau; Office for Environmental Future City Promotion); international organizations (JICA, IGES, KITA) and universities (Fukuoka Univ, Kobe Univ, Univ of Eastern Finland, Danang Univ of Technology, etc. From these study trips, I have learned not only the advance techniques, environmental friendly technologies but also the methodologies to protect environment, which is possible to apply to Vietnam in the future.

(2) Skill training

The environmental water chemistry training course provided me with fundamental knowledge about laboratory, water chemistry, environmental water analysis techniques and skills in operating high-tech equipment (GC-MS, ICP-MS, AAS, IC). This course has enhanced my capability in water analysis technique to become an excellent researcher in the field of chemistry.

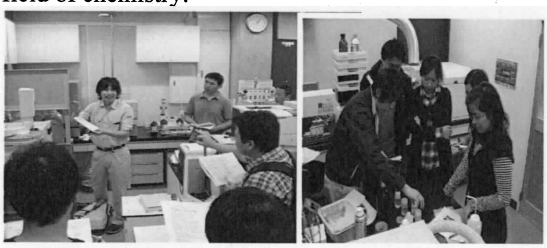

Fig. 3. Environmental water chemistry training class

(3) Internships in Vietnam and China

The purpose of the internship in Vietnam was to carry out the water environmental survey in 4 big cities in Vietnam, which is direct support to my study. These activities have enhanced my leadership skills and coordination abilities by organizing, planning, implementing an environmental operation, cooperating and working well with companies, organizations and local people. I believe my internship in Vietnam has made a meaningfull contribution to the good cooperation relationship between the University of Kitakyushu and the Vietnam Institute of Environmental Technonogy, where I work, on the exchange of science and technology in the field of environmental protection. I have also recognized the actual situation of environment in Vietnam and kept motivated to find out sollutions to protect the environment to contribute to a safe society in Vietnam. All the valuable experiences I have obtained from developed countries through SUW program will help me to put ideas and plans into concrete actions when I come back to Vietnam.

The internship in Dailian Univ, Shandong Univ and Environmental Center of Ningbo City provided the chance to share and exchange my research results with students and researchers in these institutions and enhance the research cooperation. The internship has provided me opportunities to see the actual environmental situation in a developing country as well as the current state of science and technology development in the field of environmental protection in China.

Fig. 4. Environmental education for children; water sampling in Vietnam's internship

(4) Open lectures

Open lectures is one of the most impressive SUW activities, in which I had chance to introduce about the current environmental challenges of Vietnam and to share the cultural values of my country to Kitakyushu citizen, which I belive are new knowledge to many Japanese people in the locality. Through my lecture, I have collected many valuable comments and suggestions from the friendly people of Kitakyushu about the way, methodology, and activities to protect the environment in Vietnam. On the other hand, this is also a great opportunities for me to broaden my vision about the world by communicating with the Japanese people and discovering more about the Japanese culture.

(5) Conferences

Joining conferences are valuable opportunities for me to exchange researches, to have in-depth discussion with experts in the field of environmental chemistry from all over the world, and to receive many helpful suggestions and comments for my own researches. After two years participation in SUW program, attending 5 international and domestic conferences in Japan and abroad, I had achieved knowledge in environmental chemistry field; comprehended the development of environmental research in the world; improved academic writing, listening; presentation skills and have gained more confidence in delivering speeches. I have obtained two student awards for best presentation at one domestic symposium (Symposium on Water Environment, 2012, Kitakyushu, Japan) and one

international symposium (Society of Environmental Toxicology and Chemistry (SETAC) Asia/Pacific Conference, 2012, Kumamoto, Japan). These achievements are initial important steps in my study life that keep me motivated with and committed to the field of environmental protection for Vietnam in the future.

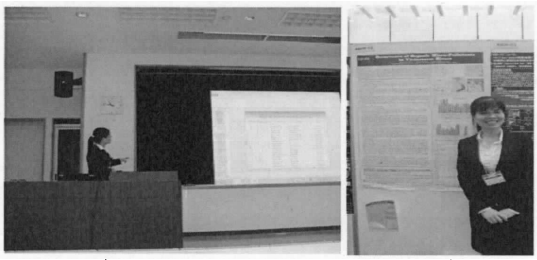

Fig. 5: 21st Symposium on Environmental Chemistry

4. What are challenges and progresses?

As a researcher in the environmental chemical analysis field working in a research institute, I had limited knowledge and practical skills in the field of environmental management, technologies; inadequate understanding of the current environmental situation in the world and lack of necessary problem solving and formulation skills. After participating in the SUW program, how have I changed throughout the program?

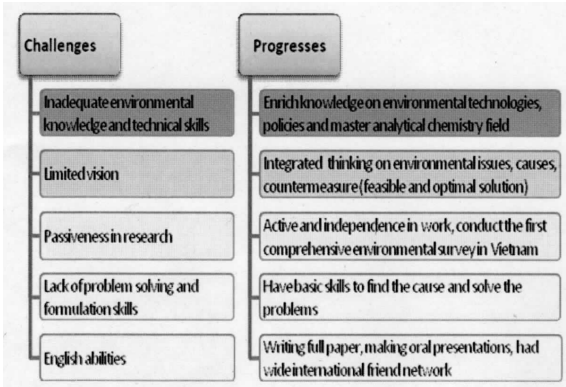

Fig. 6. Challenges and progresses before and after participating SUW program

SUW promoted the personal abilities by creating opportunities for students to participate in numerous activities in order to enrich their knowledge and skills in a variety of environmental fields. I used to be a researcher with limited understanding of chemical analysis, but now I had broaden my knowledge with vision on environmental issues of developing and developed countries, acquired the knowledge in not only water treatment technologies, water resources managements, environmental sanitary engineering, but also air pollution and environmental policies of Japan and other developed countries. I had conducted the first comprehensive environmental survey in Vietnam to find out the causes of pollution. I had carried out a primary environmental risk assessment of pollutants and had initially proposed measures to reduce pollution. Results of this study were presented in scientific conferences in Japan and abroad, by which my English abilities have been improving as well.

5. Contribution to improve environmental quality in Vietnam

As a developing country, Vietnam is striking a balance between social development and the demands of economic development, job creation, conserving the natural resources and protecting environment for a sustainable development. Being an environmental leader with specialized knowledge, expertise skills accumulated from developed countries, I find myself be responsible and to contribute in solving environmental pollution problems in Vietnam. Below are some recommendations for environmental improvement in Vietnam:

(a) Environmental education

Environmental education should be included in the education programs from elementary school. Raising awareness of pupils on environmental protection via practical actions such as implementation of waste separation at school.

(b) Capacity strengthening

Enhance human resources with extensive knowledge on environmental management, technologies, policies, expertise and skills to solve environmental problems

(c) Public participation and responsibility

Attract participation of local communities in planning and implementing measures to protect the local environment

(d) Improve legal regulations, policies and strict inspection, monitoring of law enforcement

(e) International cooperation

Strengthen cooperation with governmental and non-governmental organizations to take advantage of international assistance in terms of experiences and technical assistance.

6. Conclusions

SUW program was meaningful in the way it produced excellent human resources equipped with talented knowledge and professional skills to become environmental leaders. The SUW environmental leaders have necessary skills to organize, plan and implement environmental operation, in which they can find their own way to grasping the causes, establishing solutions to solve environmental problems in their countries. Joining this program, I had chance to study in a dynamic environment with the gathering of many students from different countries around the world and had acquired multiple knowledge in different fields from professor and experts in Japan and abroad. These invaluable assets are crucial for us to fulfill the role of environmental leaders in the future.

References

[1]http://office.env.kitakyu-u.ac.jp/suw/message/index_e.html

[2]Environmental report of Vietnam, 2006. The current state of water environment in 3 river basins of Cau, Nhue-Day and Dong Nai River system.