

## TECHNOLOGY TRANSFER FOR SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES

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### ABSTRACT

The paper aims at sharing the vision of Professor Gottfried Konecny about technology transfer for sustainable development in developing countries, particularly in Asia. The author is honored to report you that he shared with Professor Konecny many opportunities of technical transfer in the field of remote sensing, geographic information systems (GIS) and photogrammetry to developing countries since 1980's. This is to summarize what the author shared with and learned from Professor Konecny on the special occasion for celebrating the 70<sup>th</sup> birthday during ISPRS Amsterdam Congress.

### 1 INTRODUCTION

The author believes through the activities of Professor Konecny that the most important factor for successful technology transfer to developing countries is personality of open minded, non-discriminative and friendly. He is a cigar smoker, joker and "Karaoke" singer everywhere in the world. (see Photo 1). To developing countries, there exist two types of scientist from developed countries just like persons defined by Professor Konecny; elephant and crocodile, that is, one who obtains food (result) by working hard and another who tries to obtain food (result) without work. Similarly the difference between elephant and crocodile type is the one between a person looks equal to and down developing countries. There exist also two opinions about what and how technology should be transferred to developing countries; practical operation how to use existing system versus theoretical understanding how to apply existing technologies to developing countries. The author is pleased to share with Professor Konecny an opinion that we should not teach developing countries any technology without opening black box, otherwise they can not understand the theory behind the technology and also apply it for appropriate purposes.

The above debate will raise another thinking; does education in developing countries need technician level or higher level such as master and doctoral course? A famous scientist whom the author knows once said that doctoral course is not necessary in developing countries. However this is absolutely wrong. Any human society regardless developing and developed needs a leader or leaders who has or have higher knowledge and research ability to solve difficulties or problems that they are facing or will face in future.

Realizing the above discussions, the author tried to review keys for successful technology transfer as well as pitfalls for unsuccessful technology transfer.

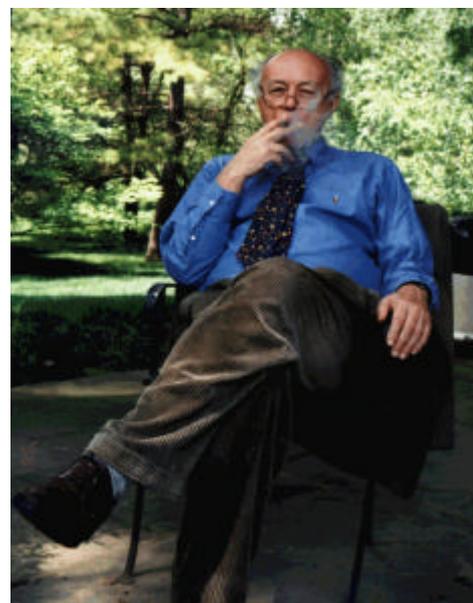


Photo 1. Gottfried with cigar

## 2 KEYS FOR SUCCESSFUL TECHNOLOGY TRANSFER

The keys for successful technology transfer to developing countries are as follows:

- 1) Excellent teacher as well as researcher  
Only top runners in research will be qualified as an excellent teacher in developing countries, because they will face unique and strange problems in developing countries of which answer can not be found in existing text books. Therefore teachers should have research capability to solve those problems, like Professor Konecny.
- 2) Good friend  
We need cosmopolitans who understand people, culture (particularly foods including hot chili or spice) and infrastructure (poor supplies of water and electricity) in developing countries. Particularly in Asia, keeping face or pride is one the most important factors for Asian to colive each other. If one can not understand people and culture in developing countries, he or she can not make good friends. It will take a long time for foreigners to become friend with people in developing countries. Any business will not be successful unless we become friends in developing countries. Professor Konecny is always a good friend to Asian that results in a great success in his business.
- 3) Great supporter  
Technology transfer should be promoted through a capable person but not by name of organization. It has never been successful at such organization where there was no leader and/or there were fightings among staff or bosses. We need a man of great insight such as Professor Konecny who can evaluate real capability of a person in charge of technology transfer. When we found such a person, we should support him or her by offering scholarship or fellowship to provide higher education, training or research.

## 3 PITFALLS FOR UNSUCCESSFUL TECHNOLOGY TRANSFER

The pitfalls for unsuccessful technology transfer are as follows:

- 1) "Hit and away" approach  
The worst case of technology transfer is a "hit and away" approach, that is a very short term project where usually a developed country rushes to bring high technology or equipment into developing countries, acquired all necessary data, and left in a few years after submitted a report of analysis with respect to a certain topics without real participation by developing countries. Developing countries used to be requested to provide data, building or room space and local arrangements such as transportation but not to join the data processing and analysis. Long term cooperation including human resources development would be most essential.
- 2) "Push button" approach  
Most of technical transfer includes how to use a technology in the application in developing countries. Therefore at the first stage, developing countries are trained how to "push button" of existing computer software without knowing the real meanings. Such black box type training will not strengthen the capability of developing countries. The second stage should include a theoretical approach, by which developing countries will be able to develop a more useful software. In order to solve problems in developing countries, technicians are not sufficient but we need engineers who can develop a software by improving or customizing existing software.
- 3) "Money" approach  
Only donating money or equipment can not reach a solution. The key is to provide those with money or equipment who can use properly. The policy of the author as well as Professor Konecny is "friendship the first and money the second." Only when we find a proper person to work with, we should promote the project.

## 4 JOINT EXPERIENCE TOGETHER WITH PROF. KONECNY

The author is pleased to report you about his joint experience with Professor Konecny particularly in Asia except ISPRS's affairs.

### - Kuwait Digital Mapping Project in 1980's

Professor Konecny was a consultant of "Digital Mapping Project in Kuwait" that will be the first project in applying digital mapping to a whole city at Kuwait. Asia Air Survey (AAS) Co., Ltd. Japan was the contractor to implement the project. (see Photo 2.) Therefore Professor Konecny visited Japan very frequently, when he met the author and explained about the project. The author served as a kind of bridge between Professor Konecny and AAS, because some of Japanese style business was different from Western. The project continued almost ten years till the Gulf War took place in 1991 when Professor Konecny successfully left Kuwait a few hours before Kuwait

was attacked by Iraqi Troops. Professor Konecny was always busy but at that time he was in one of the busiest time because he served as the President of ISPRS (1984-1988). The author would like to thank Prof. Konecny that he learned a lot from Prof. Konecny whenever they had meetings, usually at “Karaoke” drinking bar in Tokyo and Kyoto.

- The Fifth Asian Conference on Remote Sensing in 1984

The author initiated Asian Conference on Remote Sensing (ACRS) on annual base in rotation style in Asian countries since 1980. When Prof. Konecny was elected as the President of ISPRS (1984-1988) and the author was ratified as the Congress Director for Kyoto Congress, Professor Konecny accepted my invitation to participate in the 5<sup>th</sup> ACRS held in Katmandu, Nepal in 1984 as the representative from ISPRS. At that time, Nepal was not a very easy country to come and stay in good condition as usual. Only Professor Konecny’s stomach was not upset because he had enough “Rokshi” and “Cigar” to kill bacteria.

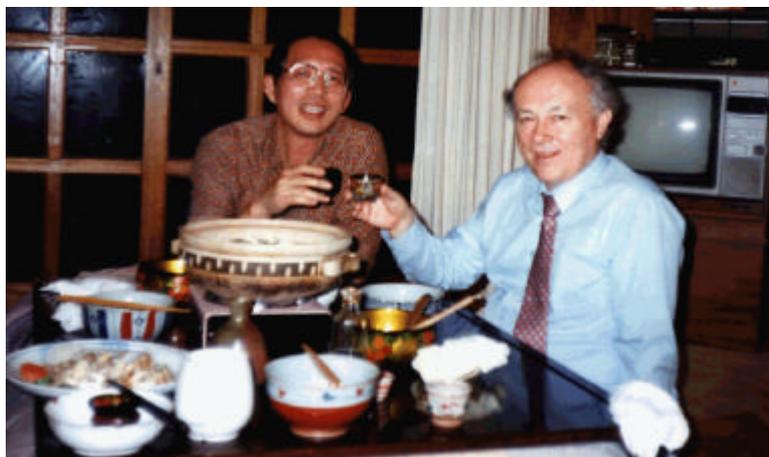


Photo 2. Kampai with Sake

- Beijing International Workshop on GIS(BIWGIS) in 1987

The first BIWGIS was held in Beijing, China under the leadership of Prof. Chen Shupeng, Director of Resource and Environmental Information System (REIS), Chinese Academy of Sciences, who is a founder of remote sensing and GIS in China. At that time, several international experts including Prof. Konecny, Prof. David Rheind, Mr. Jack Dangermond, Prof. Anthony Yeh, the author etc. were invited to the workshop as International Academic Member. They stayed at the guesthouse of Beijing University, but foreigners are not allowed to go outside without a Chinese guide. Therefore in every evening, a party was organized with the initiative of Prof. Konecny and Mr. Dangermond, when they exchanged personal views about not only China but also future of GIS. The author is pleased in particular to report you that those international experts are still now leaders in GIS. In 1999, the author was invited to the 20<sup>th</sup> anniversary of Institute of Remote Sensing Application as well as the 80<sup>th</sup> birthday of Prof. Chen Shupeng held in Beijing, when Chinese people recalled and appreciated the initiative of Prof. Konecny.

- Support to Anna University, Madras, India

The author was not aware much about the support to Anna University by Hannover University through German International Development Agency. But the author was always listening to many stories about the project from Professor Konecny, particularly about Prof. Natarajan of Anna University. In 1994, the author had a chance to visit the Anna University, Madras, where the author found excellent systems of photogrammetry and remote sensing, a perfect German style laboratory and also met Prof. Natarajan. The author believes that the laboratory will be sustainable if the human relation between Prof. Konecny and Prof. Natarajan continues.

- UN Regional Cartographic Conference, Bangkok in 1996

Professor Konecny used to be an advisor to German Delegates to UN Regional Cartographic Conference. He participated in the conference held in Bangkok, Thailand in February 1996, together with his wife Liesl. The author was happy with the pleasant party with Dr. Wicha Jiwalai, former Associate Professor of Chulalongkorn University as well as former Deputy Governor of Bangkok City, whom both Prof. Konecny and the author are good friend. Professor Konecny and Madam Liesl strongly wished to visit the author’s house located in a small village along the Chao Phraya River, about 40 kilometers upstream of Bangkok. Though they traveled many parts of the world, they tried to understand real culture and people’s life in Thailand. In this regard, the author would like to appreciate their visit to the house.

- Caravan Workshop on Mapping from Space in 1998, 1999 and 2000

GIS Application Center (GAC) of Asian Institute of Technology (AIT) started a week Caravan Workshop on Mapping from Space since 1998 with the financial support of National Space Development Agency of Japan (NASDA) and the technical support of Institute for Photogrammetry, Hannover University. The Author as the organizer of the workshop invited Professor Konecny and Dr. Karsten Jacobson of Hannover University to the first caravan workshop held in Ho Chi Minh, Vietnam in October 1998 when Professor Konecny joined a month after his retirement. He found a Vietnamese young faculty, Dr. Duan who is an excellent scholar graduated from Doctoral Course of University of Tokyo. (see Photo 3) Professor Konecny offered fellowship for Dr. Duan to get high level training at Hannover University. During the workshop Professor Konecny, Dr. Duan, and the author visited City of Mitoh, in the Mekong Delta, one of the most famous cities that were attacked by American Bombers, where they were explained about the Vietnamese War. In 1999, Professor Konecny and Dr. Jacobsen joined the second Caravan Workshop held in Bandalawera, Sri Lanka located in Central Mountains Area, about five hour drive from Colombo. It used to be a center of tea plantations in British Colonial Age. Professor Konecny, Dr. Jacobsen, Dr. Lal Samarakoon (Coordinator of Workshop representing GAC), Mr. Makoto Ono and the author enjoyed a party at the World Edge Lodge in a steep mountain together with the trainees with a lot of Arak. In July 2000 just two weeks before Amsterdam ISPRS Congress, Professor Konecny and his team including the author are invited to the third Caravan Workshop to be held in Phnom Penh, Cambodia. The author is pleased to report you about this workshop at a special session of Amsterdam ISPRS Congress.



Photo 3. Workshop in Ho Chi Minh

## 5 CONCLUSIONS

The author did know Professor Konecny through the activities of ISP (before 1980) and ISPRS (after 1980). The author was so lucky to share joint works with respect to ISPRS affairs as a Council since 1984 as well as a lot of technical transfer for sustainable development in developing countries, some of which are introduced in this article. Professor Konecny, exactly ten years senior to the author has been a teacher, a brother, a friend and a co-worker to the author. (see Photo 4) He is sure to be a best example how to make technology transfer successful. The authors sincerely and heartily celebrate the 70<sup>th</sup> birthday of Professor Konecny with a deep appreciation of his dedication to encourage real growth of developing countries.



Photo 4. Gottfried and the author