

# **Networking, Competence and Capacity Building through FK Norway Exchange program, Network in Geomatics and Environment**

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Laos PDR**

**Key words:** Networking, competence and capacity building, geomatics, exchange

## **SUMMARY**

From 2001 – 2009 there has been an exchange program between the following partners: Ministry of Nature Resource and Environment, MoNRE, Vietnam, Vietnam Association of Geodesy Cartography and Remote Sensing, VGCR Vietnam, National Geographic Department, Laos and Statens kartverk, Norway.

The objectives of the program is to: Strengthen the relationship in the geomatic field between the three countries, enable knowledge share in the international development in the geomatic field and to broaden the knowledge of best practice and value for society by use of geographic information. It is a program to give young surveyors the opportunity to work together with colleagues in another country to exchange experience in the Geomatic field, learn about new tools and methods and contribute to the development of good solutions and value for society in selected fields within the broad geomatic umbrella.

When the program will close up in 2009 altogether 49 people have taken part in the exchange program with 12 – 14 months working and learning in another country. Both private industries and public authorities have taken part as host organisations. The participants has got both increased professional skills and improved language skills. They have got new friends and colleagues, lived with another culture, food and weather conditions and have also taken part in the broad FK network with participants from more than 30 different countries.

The exchange program is a good contribution to experience exchange, capacity and competence building as well as bringing people together in a broader network

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## **1. INTRODUCTION**

The original Fredskorpset (Norwegian Volunteer Service) was founded in 1963 and was based on sending Norwegian volunteers in various disciplines to assist with the development in development countries. In 1999 the Norwegian Parliament gave its approval to a government proposal to restructure the organisation. The new Fredskorpset now called FK Norway launched its activities in 2000. The previous principle of “teaching to help” was replaced by a principle of “working to learn” The task of the FK Norway is to promote contact, co-operation and exchange between individuals, organisations, companies and institutions in Norway and the South. Such contact shall be based on reciprocity, equality and general solidarity. Thus, a partnership shall be based on, and conducted in the spirit of mutual learning and acknowledgement, as well as shared aspirations and goals. The FK is intended to help strengthen the commitment of young people and assist them in becoming involved in efforts to create a fairer world in North and South alike.

The Norwegian Mapping and Cadastre Authority in cooperation with the Norwegian Association of Surveyors has made agreements with sister organisations and institutions in S.R. Vietnam and Lao PDR for an exchange program for young surveyors. The main partners in Vietnam are the Ministry of Nature Resource and Environment, MoNRE, and the Vietnam Association of Geodesy Cartography and Remote Sensing, VGCR. Also some Universities and research institutions have taken part in the program. The partner in Lao PDR is National Geographic Department.

The program started in 2001 with visits to each other countries to identify the field of cooperation and potential host partners. The real exchange started in 2002 with 6 Norwegians going to Vietnam, 9 Vietnamses going to Norway, 1 Norwegian and 1 Vietnamses to Laos, and 1 Lao to Vietnam. When the program close up in 2009 altogether 49 people have taken part in the exchange program with 12 – 14 months working and learning in another country. Both private industries and public authorities have taken part as host organisations.

## **2. OBJECTIVES AND ACTIVITIES**

The technologic development in the geomatic field is rapidly changing. Geographic Information Systems (GIS) is more available and used all over the world. It is important to develop solutions and standards on how we organise, exchange and combine basic geographic information with thematic information. If we are successful in demonstrating and

communicating this we will contribute to better solutions, sustainable development and cost savings in many fields in the society.

## Objectives

The overall objectives for our exchange programme is to

- Strengthen the relationship between sister organisations in the geomatic and environment field
- Create good relationship and integration/team work for exchange candidates
- Contribute to experience exchange in the development in the geomatic and environment field
- Broaden the knowledge of best practice and value for society by use of geographic information and by use of new methods for air quality research and assessment.
- Training in the chosen areas within geomatic and environment management and assessment

The goal is to give young surveyors the opportunity to work together with colleagues in another country to exchange experience, get training and assist in training that can help their organisations in the development of good solutions and value for society within geodetic network, dGPS and positioning, standardisation, remote sensing, SDI and database management, hydrographic survey, topographic and thematic mapping, land management and cadastre, web mapping, air pollution modelling and spatial planning. Geodetic Network, reference framework and transformation

The purpose is to transfer technology and managerial knowledge as a resource for economical and social growth for strengthening societies and improve the situation. Geographic information represents an infrastructure that is necessary in many aspects in the society such as;

- Local and regional area planning and management
- Environment- and nature resource management
- Forestry, agriculture and fishery
- Property and land management, cadastral issues,
- Infrastructure

The expected outputs (results) is to have an extended capacity and improved technology and methods in the geomatic and environment field within the partners' organisation as well as institutional strengthening in the selected topics for exchange including exchanged experience on good management, working methods and cultural aspects. Other expected outputs are

- Improved cooperation across institutions and across country borders
- Strengthened network between partners and participants
- Strengthened network to other FK programmes in the region.

- Improved satisfaction and better use of the candidates skills within the host organisations
- Improved network for international contact and standardisation.
- Improved professional skills in specific subjects and improved language skills
- New project(s) shall be initiated with possibilities for funding
- Increased knowledge about standardisation, new methods and systems.
- Increased production capacity within host and with home partners

## 2.1 Current Situation

The Current situation, in relation to what the partners want to achieve has been positive for the partners and most of the participants social, cultural and professional. The working situation in first phase for the South participants was not optimal due to language problems and reorganisation by host partner. For some of the North participants there has also been a challenge, especially within some of the host organisations. It is important to find the optimal institution and use some time from the start of the posting to define tasks and progress for both host and participant. Networking among professionals internationally should be widely used for important information, discussion and exchange of experience and technology transfer. Good language skills in English for more employees are crucial. Projects and funding for implementation are highly needed as a supplement to the FK programme

The field of professional tasks within our partnership is within geodetic network, dGPS and positioning, standardisation, remote sensing, SDI and database management, hydrographic survey, topographic and thematic mapping, land management and cadastre, web mapping, air pollution modelling and spatial planning. Included in the program there have been several study trips to geographic and thematic mapping authorities, development agencies and private companies. The participants has got both increased professional skills and improved language skills. Important aspects have also been to learn about other culture and make friends and network between the organisations and to inform about their home country both in the professional field, and socially and cultural.

In the following we will present the main partners and some of the professional outputs and lessons learned from the program and we include a statement from one host company: “we appreciate how having our Vietnamese participant around, forces our own Norwegian employees to realize that they are part of a constantly increasing International environment.” A statement from one participant gives his tribute to the program “From my opinion, the program should be continued. This program is very essential for Lao PDR as well as the participant can get useful experience by working in different countries.”

### **3. THE MAIN PARTNERS**

#### **3.1 Norwegian Partners**

##### 3.1.1 Norwegian Mapping and Cadastre Authority (NMCA)

NMCA is a governmental agency with the task to develop and operate the national geographic infrastructure in Norway. (Norway digital) The infrastructure comprises:

National geodetic network at high precision and with international interconnection

Accurate satellite positioning services to ensure safe maritime, land and air navigation

Data series of geographic information, nautical charts and land maps

National Geographic Information Centre (NGIS) as a repository and distribution service

Standards for maps and geographic information

NMCA is also responsible for the Norwegian Land Registry

NMCA's role is to be the facilitating partner in Norway, main contact to FK and Programme co-ordinator

Fields of interests; Standardisation, Geodesy, Geodetic network, Differential GPS, Remote sensing, Spatial Data Infrastructure, Photogrammetry, Cartography, Cadastre/Land Registration - Land and property management, Area analysis, GIS, Hydrography. In addition to Environment and Geomatics subjects in the primary programme, the senior exchange part will give emphasis to Management, Leadership strengthening, Education, Business plan, Public service.

##### 3.1.2 Norwegian Co-partners

Norwegian Association of Surveyors participated in the starting phase with information and network assistance

Norwegian Institute for Air Research, NILU is host in the third phase

Ugland IT Group, private mapping and Web Company that has been host in three phases.

Blom Geomatics, private surveying and mapping company that has been host in all phases

Trondheim Municipality is host in fourth phase

UNEP GRID Arendal was host in first phase

Norwegian participants are open recruited and come from various organisations both public and private

#### **3.2 Vietnam Partners**

##### 3.2.1 The Ministry of Nature Resource and Environment (MONRE)

MONRE is the main responsible partner from Vietnam in collaboration with VGCR.

MONRE with its Department of Surveying and Mapping including Land Administration is a sister organisation to the NMCA and has the same governmental responsibilities as NMCA.

MONRE with its Department of Nature Resource and Environment is also responsible co-partner to the Air Pollution and Research area. Several of MONRE's units have participated in the program by both being host for candidates from Norway and Laos and by sending candidates:

- a) Vietnam Research Institute of Land Administration (VIRILA) The Field of interest: Geodesy/dGPS, Land information systems, environmental information systems, GIS and thematic mapping
- b) Cartographic Publishing House (CPH) Field of interest is within Mapping, Standardisation, Database, GIS
- c) Centre of Information and Documentation Archives of Resources and Environment (CIREN) Their field of interest: GI-Database design, GIS applications, GI-IT network
- d) Aerial Photo Topography Company (APTC) Field of interest: Mapping and GPS.
- e) Cadastre Engineering Survey Company (CESC) Field of interest: Cadastre, Land management, geodesy/GPS, database
- f) Technology Environment Consultancy Service (TECOS)
- g) Field of interest: Database, GPS/dGPS, Land management, Land titling

### 3.2.2 Vietnam Association of Geodesy, Cartography and Remote Sensing (VGCR)

VGCR is a non governmental organisation activating in the field of geomatics. Its goal is gathering and animating all of people who are working in the field of geomatics for helping each other to improve their professional knowledge and experience. VGCR are representing Vietnam in the international Federation of Surveyors (FIG).

VGCR's role in the program is as a facilitating partner in Vietnam, main contact to NMCA and program co-ordination in Vietnam. VGCR has a broad network to relevant host organisations and to Universities and provinces. VGCR is coordinating the recruitment processes in Vietnam and the information about the program in publications, web, local media and through conferences

Ho Chi Minh city Environmental Protection Agency (HEPA) is the organisation that has the continuously contact to NILU. The field of interest: Air Quality and assessment methods, poverty and health impact

The Hanoi University of Mining and Geology, faculty of Geodesy and Land administration has recruited and hosted exchange candidates and facilitated information seminar on the program at the university. Field of interest: Geodesy/GPS, mapping, Land management

Ho Chi Minh city University of Technology, Department of Geomatics Engineering took part in the first phase of the program as a host for two of the Norwegian candidates. Field of interest: Database/GPS, survey/GPS, Remote sensing

### 3.3 Lao Partner

#### 3.3.1 National Geographic Department of Lao PDR (NGD)

NGD is the main partner in Laos. NGD is the responsible governmental institution working with Surveying and Mapping in Lao PDR. NGD is a department by the Prime Ministers office and is responsible for the Act of Surveying, for the Geodetic network, surveying and mapping, base map for land titling project and the national geographic infrastructure.

NGD has hosted 7 candidates from Vietnam and Norway. Field of interest: Geodesy, geodetic network, Surveying and GIS, establishment of Spatial data infrastructure (SDI). NGD is also cooperating with Department of Lands with the property system in Laos

## 4. THE EXCHANGE PROGRAM

First phase of the exchange programme was carried out in the period from 2002 to 2004. The total number of participants was 18, with 7 Norwegians abroad and 9 from the South visiting Norway and 2 participants exchanged between Vietnam and Laos. Second phase was carried out in the period 2005 – 2006 with a total of 9 participants. We are now finishing the third phase and in the middle of fourth phase with some overlap. Total it will be 21 participants in phase three and four ending up in 2009.

### 4.1 Achievement through first Phase of Exchange

The indicators for the professional part of the program for **South partner** are some specified output like map production and distribution, papers to conferences and publications, transfer of methods, guidelines for standardisation, satellite data analysis for forestry and environment use, research publications, map data structuring, documentation of methods and production line. For the south partners and participants the indicators are improved language and skills in the geomatic field, new methods and a network to use in the future.

The overall objectives are achieved so far according to the South partners but there could have been better results if the demands to the participants and commitment by host organisations had been more clarified in the beginning. There could have been better results also if the FK program was more linked to other international projects that were communicated and reported in English.

The results from South – South exchange are reported to be positive both from Laos and Vietnam. Some of the activities by the participants here were linked to other co-operation programmes between Laos and Vietnam with basic surveying and maps for cadastre programme and cooperation with Department of Land. Lao partner especially express their satisfaction with the exchange program.

The indicators for the professional part of the program in **North** are the satisfaction of the South participants and the North hosts related to the objectives of the program and specified outputs.

Some positive results and concrete output have been achieved like some special map production, distribution on the web, analysing and production of satellite image products and speeding up the structuring of some Russian data for the 1:50.000 scale map. Network and friendship has been strengthened. We have got some very good presentations about Vietnam that have been presented both at local library, national exhibition, to representatives from Norad, Ministry of Environment, some governmental authorities, directorates and private industries in the Geomatic field. This has contributed to network strengthening. There have also been discussions on possible development co-operation especially in the hydrographic and geodetic field linked to the FK program. There is also established some contacts between private industry in Norway and potential partners in Vietnam.

The main conclusion of the first phase was that there are positive results and a stronger partnership. We also learned that we must have stronger commitment both from host partners and participants in the program; we concluded to reduce the number of participants in second phase to be able to have a better follow up and a better integration. The results are best where the participants have good language skills and have got relevant work to do.

#### **4.2 Achievements in the Second Phase, 2005 - 2006**

The number of participants was reduced from 18 in first phase to 9 in this second phase. The desired possibilities for following up was satisfactory for the South participants. The 4 South participants also had good language skills except from one who therefore were given special training during the period in Norway. The result was good improvement in communication and performance of his work.

The North participants to Vietnam had some challenges with the work tasks to be optimal from the beginning and it was decided to change host organisation for both North participants during their exchange period. There was an improved outcome for both North participants in Vietnam after communication and meetings in Vietnam in connection with the annual partner meetings in March 2006.

The achievements was better in the second phase than in the first phase. Our experiences by cooperating with private companies as host organisations contributes to a win win situation and broaden the network and is a good base for future cooperation. This will however depend on the skills, the interests and expectations both by the participants and hosts. One of the candidates has been within NMCA, Hydrographic division and got relevant training and work in his field. Two candidates mostly worked with a private company and one candidate was half time with NMCA and half time with a private company. Some listed professional outcomes from the South participants:

- Experience in use of new software for making map: FYSAK, OCAD, ESRI...

- Digitizing, updating and editing thematic maps
- Editing Municipality maps. Scale 1:125000
- Editing Trondheim city book maps. Scale 1:10000
- Editing boat sport maps. Scale 1:50000
- Learning about Neptun and CFloor system software
- Make curves by using TerraScan and GISLine
- Monitoring in GPS control centre, recording regularly backup

Some listed professional outcomes from the North participants:

- Education material for GPS surveying and control network
- Knowledge about Cadastre surveying and registry in a village for user certificates
- Articles for Dia Chin about Land Administration in Norway
- Compendium and lectures on GPS/GNSS systems for use at University
- Participating in work with satellite imagery and field trips for ChATSEA
- Learning about Remote Sensing and PCI-Geomatica
- Land Titling project - digitising land parcels for DoL
- Create metadata for the Mekong GIS data
- Map production 1:25.000 Bolikhamxai
- Digital Elevation Model and contour lines - Northern Lao
- Population maps Saravan Province for UNDP
- GIS Database 12 seamless layers for Lao
- General Support within GIS, ArcGIS, ArcINfo, Adobe
- English teaching

I will show some of the examples in my presentation

### **4.3 Phase 3 and 4 (2007 – 2009)**

Because we concluded to scale down the number of participants in each phase the exchange program was prolonged in time. The continuation gives better sustainability of the investments made in first and second phase. The network is stronger and it is easier to communicate and adjust for improvement and better output both for partners and participants. Also there was a wish to include the Environmental field especially the Air Quality and urban planning field.

The programme includes many partners and co-partners both in Norway and in Vietnam. Including a Senior Programme for the last three years helps bridging the contact and coordination across institutional barriers. It could also help the participants in the Primary Programme to achieve a better situation and better output from the programme. Even with the preparatory discussions there is a need for more exactly definitions of the tasks and to make adjustments in the start of the posting abroad. Both parties are working for an optimal solution with the Senior FK participant as a facilitator. A Senior FK assists especially in

connecting the FK program to other relevant projects and assists the South partners in their work for funding applications. One focused area for the Senior Participants as specified by the South partners is to contribute within the standardisation work.

#### **4.4 Example of a Position Defined for one Participant**

Candidate from Norway to Laos

Estimated time to start November 2007

Duration of engagement on to: December March 2008

In host country: Participant's sphere of responsibility while at host partner will be in the field of Spatial Data Infrastructure, Database management and GIS. The candidate will take part in the technical development and establishment of GI databases to help management and distribution work on the geographic information created within NGD

The participants' colleagues while at the host partner will be the following: NGD, Science and Technical Division, contact Kongkham Sourigna and Bounhome Heuangsavath

The participant is expected to learn about Lao culture, Lao framework and organisation in the geomatic field. The candidate is expected to learn to transfer knowledge and build and share network.

After return to home country: *The main beneficiaries* will be the network of geomatics especially the organisations, companies and individuals interested in international development in the geomatic field. The sending organisation is also expected to benefit from the exchange which leads to strengthened network and partnership. In addition we hope to get more information and knowledge about FK and the international experiences spread also in the local society where the FK participants have their home place.

*Specific activities to prepare for and share experience and knowledge after return to home country* will be aimed at regional and local public and authorities, Fredskorpset, NORAD and The Norwegian Ministry of Environment, The ministries of Foreign Affairs, professionals in the field of surveying, mapping and area management both national and international, local public in the area where the exchange participants work.

Main activities will be information to regional/national newspaper and other media like internal newsletters, professional magazines in each country and information on relevant web sites. Other activities will be participating in workshops, exhibitions and networking to share their experiences as well as presentations to national and international seminars and conferences.

Criteria for recruitment: Required professional background and/or experience of participant will be higher education and experience in surveying and GIS/ICT

Personal qualities required of the participant: Good English speaking and writing, curiosity, flexibility, open minded

## 5. CONCLUSIONS

The overall conclusion of the program is that it has contributed to most of the objectives and goals set up for the program. We have improved since first phase, we have found a better communication form between the partners and we have a broad network that can support also the future phases to come. We have built on the experiences and extended the phase running now with a senior participant integrated in the program that better bridge and secure the capacity building especially by South partner organisations. The participants overall impression is positive, some network is established both professional and social. Even a marriage is an outcome of the exchange program phase II.

Some good advice from the participants:

- Give the participant a mentor with authority
- The participant should not work as a “foreign expert”, but as employee together with the host staff.
  
- Don’t be afraid to use the participant, put him on committed projects
- Organise a presentation early, where the participant can inform about himself and the project
- Make clear and detailed working plans
- Review of working plans every 3 months
- Describe routines and reporting
- Demand results, demand reports
- Coordination with other funds for implementing projects
- More Country knowledge and understanding processes
- Information transfer through reports from former participants
- Overlap between participants
- Find right match participants - host organizations

Our program contributes also to the main FK Norway ideas about forging new ties, exchanging knowledge, meeting people and crossing boundaries  
These exchanges manifest themselves at different levels;

- At the human level, where the participants changes their lives forever
  - At the institutional level, where the companies and organisations gains access to new markets, acquire new expertise and broaden their understanding of the international sphere
- As a total we can say that we now represent a big family with relatives in all three countries and a strong network that can be used for many purposes also outside the main program for exchange.

## BIOGRAPHICAL NOTES

**Kari Strande** is International Director at the Norwegian Mapping and Cadastre Authority. She is chair of FIG WG 3.1 task e-Government for e-Citizens. She is also working with development cooperation and spatial infrastructure projects as tool for development. She is coordinating an exchange program for young surveyors in Vietnam, Laos and Norway.

**Trinh Anh Co** is Secretary General of Vietnam Association of Geodesy Cartography and Remote Sensing, VGCR and also employed by Ministry of Nature Resource and Environment in Vietnam. He is actively involved in international tasks like standardisation and is working with place names and taking part in UNGEGN. He is the coordinator in Vietnam for the exchange program for young surveyors in Vietnam, Laos and Norway.

**Kongkham Sourigna** is Deputy Director of National Geographic Department in Laos and takes part in many international tasks on behalf of NGD. He is the coordinator in Vietnam for the exchange program for young surveyors in Vietnam, Laos and Norway.

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