

**FINAL REPORT ON THE PGTF PROJECT  
INT/96/K03/A/95/99**

**Training of Personnel in the Field of  
Standardization and Metrology for the Conformity  
Assessment among Developing Countries**

**Committee for Standardization of the D.P.R of Korea  
Pyongyang**

The committee of Experts of Perez-Guerrero Trust Fund (PGTF), at its meeting in New York in July, 1996 considered a proposal for a PGTF input to the project "Training of Personnel in the Field of Standardization and Metrology for the Conformity Assessment among Developing Countries" presented by the Democratic People's Republic of Korea (DPRK) and recommended that USD 76,500 be allocated to the project.

The 22<sup>nd</sup> Annual meeting of the Ministers for Foreign Affairs of the Group of 77 in New York in September 27, 1996 approved this allocation.

Accordingly, a sub-contract Agreement was concluded on 7 May 1997 between the Ministry of Foreign Affairs of the DPRK, the National Focal Point of the Group of 77, on behalf of the DPRK Government and the Committee for standardization of the DPRK (CSK) concerning the implementation of the project INT/96/K03/A/95/99 "Training of Personnel in the field of Standardization and Metrology for the Conformity Assessment among developing countries."

This report covers the activity relation to the implementation of the project INT/96/K03/A/95/97 and provides its final account.

## **1. Background.**

Today the developing countries make common efforts to realize the south-south cooperation on the principle of collective self-reliance and ardently desire to develop the economic and technical cooperation and exchange through the international organizations.

It is important for the enlargement and development of south-south cooperation to develop the unified works of standardization, metrology and quality management, which is the economic and technical basis of the developing countries. Therefore, the meetings of coordinating countries in the sphere of standardization, metrology and quality control of non-aligned countries including the 8<sup>th</sup> meeting held in Pyongyang in August 1988, prescribed the principles in the fields of standardization, metrology and quality control with objectives on the mutual cooperation and exchanges as follows;

- The strategy to develop the standardization, metrology and quality control in a harmonized way among the developing countries for removing the technical barrier which is getting higher on the international level.
- To strengthen the cooperation among the developing countries, thus developing standardization, metrology and quality control in accordance with the demand of collective self-reliance.
- To establish their own systems in the sphere of standardization, metrology and quality control.
- To rapidly train the personnel in these fields according to the international trend.

The present project was aimed at the development of the standardization, metrology and quality control meeting to the needs of collective self-reliance in Cambodia, Laos, Pakistan, Zimbabwe and DPRK.

For the implementation of the project the sub-contract was concluded between the Ministry of Foreign Affairs of the DPRK (MFA), as the implementing agency, and the CSK, as the sub-contractor in Pyongyang on 7<sup>th</sup> of May 1997.

The Mr. Choi Su H on, the vice-minister of the MFA and Mr. Ryo Song Gyun, President of the CSK, signed the sub-contract.

The immediate target of the project was to help the beneficiary countries in setting up and operating their own national systems of standardization, metrology and quality control (SMQ) on the basis of the principle of collective self-reliance.

The activities carried out for the implementing the target cover the analyzing and reporting of the detailed situation of the SMQ in the 4 countries, training of personnel providing them with the technical information and material means to be able setting up and operating their own system of SMQ.

## **2. Activities for implementing the project.**

Preceding of the project first stage Mr. Kim Jae Won, Director of MFA was appointed as the coordinator of the DPRK Government for the implementation of the project, Dr. Cho Chun Hui, Director of the Bureau of Standardization, Dr. Kim Gwang Ho, Director of the Bureau of Metrology were appointed as the responsible consultants and Mr. Kim In Ryong, as the Project Treasurer and the Working Group for implementing the project headed by them was organized.

The Working Group appointed 4 consultants respectively at the Institute for Standardization and the Central Institute of Quality and Metrology who were experienced for more than 20 years with rich and practical knowledge in the field of standardization and metrology to begin technical and practical preparation.

First of all, the Working Group started to analyze practical situation and exchange of information in the field of SMQ in the beneficiary countries.

The practical situations of standardization and metrology in Pakistan, Zimbabwe and DPRK were exchanged and studied by correspondence through the DPRK representatives in the Pakistan and Zimbabwe.

The Pakistan Standards Institution was organized by the private law but granted official recognition by the Government Authority, the number of employees directly belonging to which was 152, and 65% of financial resources of which were born by the Government.

And it was responsible to establishment of standards, quality certification, quality assurance and metrology and application of the standards on the voluntary basis.

Pakistan national Physics and standards laboratory and was in charge of reservation, maintaining of metrological standards and reference instruments and of transferring of metrological units.

The Standards Association of Zimbabwe, non-governmental organization was responsible to standardization in Zimbabwe.

The number of employees directly belonging to it is 64, responsibilities of it were adoption, publication of the standards, quality certification,

quality testing service, education in standardization and 73.59% of financial resource were born by the government.

In Zimbabwe certification mark system was under operation so that goods, and materials were certified according to the corresponding standards and the certified goods and materials were bearing certification mark.

Feeling that it was difficult to study detailed status of standardization and metrology in Lao PDR and Kingdom of Cambodia the working group dispatched the expert delegation consisting of Dr. Kim Gang Ho, Director of the Bureau of Metrology, Dr. Sin Su Gil, Director of Quality Certification, Mrs. Høng Sok Chae, Officer of CSK, Mr. Li Hae Sop, the officer of the Bureau of standardization to the Lao PDR and Kingdom of Cambodia.

During their stay in Lao PDR and Kingdom of Cambodia from November 4 to 10 1997 the delegation met the functionaries and experts concerned in the department of International properties, standardization and metrology, science, technology and environmental organization of Lao PDR (STENO) and visited metrological calibration laboratory, quality testing laboratory and factories so that the delegation studied vivid status of standardization and metrology and accepted practical needs of them.

In other hand the delegation met the experts in standardization and metrology of the technical department, Ministry of Industry, Mines and Energy of Kingdom of Cambodia (MINE) and grasped clear situating SMQ in Cambodia through the meeting with the experts and visit to the metrological calibration laboratories and quality testing laboratories.

And the delegation gave the lectures and consultant service concerning the successes and experiences in SMQ in DPRK and international trend in SMQ. The experts interested the lectures.

The reports on activities of experts delegation in Lao PDR and Kingdom of Cambodia are given in Annex 1 and 2 respectively.

The working group made detailed arrangement for training program and papers for lectures according to the analysis of practical situation of SMQ and data informed.

The working group confirmed the stated investment plan for maintaining and repairing laboratories and began to maintain and repair the buildings and to compensate and update of the equipment and instruments for the project (training).

At the same time, the Working Group prepared the guides and fabricated reference instruments needed for establishment and operation of the national system of SMQ in the developing countries.

The 10 experts from Laos, Cambodia and Pakistan were selected as the trainees for the training course.

According to the preparation, the training course was held from July 7 to 21 in Central Research Institutes for Quality and Metrology.

The training course was opened by the inauguration speech of Mrs. Pak Mu Song, vice-president of CSK.

At the opening ceremony, Dr. Yun Ok Hyon made celebrating speech and introduced professors and doctors to give lectures.

The list of participants and title of lectures of training course are given in the Annex 3 and 4.

On the requests of the trainees, 1 or 2 hours additional lessons for questions and answers were daily organized in the Institute or in the Hotel and CSK provided the trainees with the information concerning the national system of standardization, Handbook of ISO9000 family standards, information for building up of standards data base, measurement of timbers, cement standards alloy metal standards including zinc, nickel alloy and 9 papers for lectures. And concerning the metrology the CSK provided trainees with the technical information's on length measurement, 8 kinds of verification schemes of mass, pressure, temperature and humidity measurement, 9 kinds of verification instructions on mass, temperature and flow measurement, 19 papers for lectures.

CIQM gave trainees practice lessons and transferred the drawings to make them able to elaborate standard weights and standard volume meters and especially practical knowledge by accompanying the testing and practice to the lessons.

In the training course general information and practical issues were given to the trainees through the studying visit to the Central Testing and

Analyzing Center, Korean Computer Center, Central Institute of Quality and Metrology and CSK also organized visit to the famous places and old relic places, theaters and museums in Pyongyang and other places.

Closing the training course Ms. Pak Mu Song, vice-president of CSK made speech and granted the trainees the certificates and CIQM provided the trainees from Lao PDR, Kingdom of Cambodia, Islamic Republic of Pakistan with the 3 sets of mg standard weight of 1<sup>st</sup> class, g standard weights of 1<sup>st</sup> class and 1 piece of kg reference standard, and the trainees expressed thanks to the CSK and CIQM.

All the participants of the training course unanimously recognized that present course became the training course to transfer the knowledge urgently needed for the development of SMQ in the developing countries on the principles of collective self-reliance and presented recommendations to the CSK to organize such training program continuously in the future, too.

The recommendation is given in the Annex 5.

According to the request of the Zimbabwe, CSK dispatched the technical information and papers for lectures to the Zimbabwe by DHL world express.

### **3. Outputs of the project.**

- 1) The each of beneficiary countries analyzed the status of SMQ in their own country and reported each other by written form the suitable pattern and method for the conformity assessment. The sponsor country (CSK) provided the 4 countries with practical methodology and guides (directives) to contribute to the collective self-reliance on the basis of comprehensive analysis of SMQ in 4 countries.
- 2) Methodological guides for drafting standards were made in each country for conformity assessment among 4 countries, respecting the basic principles of ISO and IEC.
- 3) The methodological guides were given to the beneficiary countries to establish mutual quality certification system according to ISO 9000 standards. The standards data base and quality testing and certification bases will be set up for international exchange among themselves using the guides provided by CSK.

- 4) The beneficiary countries agreed to set up and operate comparison and calibration system of metrological standards and reference instruments, CSK transferred the standard weights to Laos, Cambodia and Pakistan and periodical comparison and calibration system of mass, force, pressure, length, angle, hardness standards and reference instruments at low price was established.
- 5) The CSK provided the beneficiary countries with the various kinds of verification instructions, verification flow chart so that the beneficiary countries may set up verification system according to them.
- 6) At the end of the project the 10 personnel from Laos, Cambodia and Pakistan were trained as the experts with rich knowledge in SMQ.

#### 4. Conclusion.

Implementing the project CSK attained valuable experience that the developing countries are able to upgrade the works in SMQ to meet the developing practical needs by realizing cooperation and exchange in SMQ if the developing countries work together and help each other.

5. The CSK was remitted USD 68850 by the Perez-Guerreo Trust Fund for economic and technical cooperation among developing country members of the Group of 77 and the money was efficiently used as the seed money for implementing the Project and the statement of account is attached.

Chae Gwang Rae



President

Committee for Standardization of DPRK

# STATEMENT OF EXPENDITURE

( From July 1 1997 to July 31 1998 )

Project Document Section		E	
	Person/Month	Planned USD	Expended USD
<b>1) Personnel</b>			
Responsible Consultant	2	5000	5000
Consultants	4	12000	12000
<b>2) Organization of course</b>			
Air tickets		13300	15600
Fees for board and lodging		22500	20200
3) Dispatch of consultants		9600	9600
4) Equipment		8000	8150
5) Miscellaneous		6100	6000
<hr/>			
<b>Total</b>		76500	76550
Amount received			68850



## **REPORT ON ACTIVITIES OF THE STANDARDIZATION AND METROLOGY EXPERTS DELEGATION OF THE D.P.R OF KOREA IN LAO PDR.**

The Standardization and Metrology Experts Delegation of the D.P.R. of Korea visited Lao P.D.R from November 4 to 10 June 86 ( 1997 ) to implement the project " Training of personnel in the field of Standardization and Metrology for the conformity assessment among developing countries "

The delegation consist of 4 members :

Dr. Kim Gwang Ho, Director of Bureau of Metrology State Commission of Science and Technology, Dr. Sin Su Gil, Director of Bureau of quality certification of the committee for Standardization, Mr. Hong Sok Chae, officer of Bureau of Quality certification of CSK, Mr. Ri Ha Sop officer of Bureau Quality Certification and surveyed the practical condition of Standardization and Metrology in Lao P D.R.

During the Stay in Vientiane the delegation has been accompanied by Mr. Nheune SISA VAD, Director General of the Department of Industrial Property, Standardization and Metrology ( ISM ); Mr. Khamphouvong KHAMBOUNHEUANG, Deputy Director General of the ISM Department; Mr. Bounthiam PHIMVONGSA, Senior officer of Metrology Division of the ISM Department. Mr. Soumana CHOULAMANY, Senior officer of Metrology Division of the ISM Department

The delegation had meeting with Science, Technology and Environment Organization ( STENO ) experts and visited Ministry of Industry and Handicraft and Lao Brewery Company.

Even though time was limited the delegation surveyed detailed situation of Standardization and Metrology in Lao P.D.R.

It was considered that the Standardization, Metrology and Quality control in Lao P.D.R were still in the nascent stage and there were alot of things to be carried out.

For the standardization and quality control it just started only with a product standard reflected in a Decree of the Prime Minister and other basic as well as methodological standard is still in the process of drafting and national administration system of Standardization is also in the same situation.

The legal foundation is provided but the implementation of the law is being scarcely realized.

For the Metrology it was same situation.

The responsibility is to calibrate accuracy of all commercial weighting scales which are being used in the markets in Lao PDR but lack of references instruments ( for example reference weights for calibration) and skilled persons witnessed through visit to laboratories.

Though the calibration of watt-meter is being conducted it is not actively conducted by the national administrative body and entrusted to the company itself to calibrate due to the lack of reference instruments. For the same reason the national calibration of the measuring instruments related to human life including manometer, clinic thermo-meters is not conducted and entrusted to the factories or companies to carry out by themselves

Especially the calibrating instructions of commercial weighting scales are not provided in written even these are most necessary and simplest.

Calibration of flow meters (volume meters) used in measurement of fuels and oils imported is not yet carried out by the state because reference flow meter is not equipped so it is conducted by the import companies.

The quality control legal and material mechanism are not provided to control exported or imported products in the situation where venture companies and imported products are rapidly increased . Especially state is not able to assess the quality of exported or imported products by themselves so caused great losses to the state and consumers.

The delegation informed of the successes and experiences achieved in standardization technology and quality control in the PDR of Korea through the lectures and meetings with Lao PDR experts.

- Standardization in DPR of Korea Dr. Sin Su Gil .
- Metrology in DPR of Korea Dr. Kim Guang Ho
- Quality Certification in DPR of Korea and ISO 9000 series  
Mrs. Hong Sok Chae.

The lectures are interested by Lao PDR experts

1. STENO proposed to CSK to train the experts to be able to proceed legislation of standardization, set up and operate national administrative standardization system and quality management and quality assurance system.

2. STENO proposed to CSK to train the experts to be able to design and elaborate measurement standards of mass and volume and to establish and operate the calibration system in this field.

3. STENO proposed to CSK to provide the technical information in the field of standardization and metrology.

By consideration of these issues the delegation made conclusions as follows within the project is the financial limitation.

The Committee for standardization (CSK) shall have responsibility to cooperate with and help Lao PDR in setting up the standardization, metrology and quality control as follows.

#### 1. Standardization and Quality Control:

A. CSK shall provide STENO documents for quality and standardization such as:

- Methodological guide.
- Directives of drafting standards.
- ISO 9000 family standards and certification of product and quality system.
- Directives on economic effectiveness.

B. CSK shall cover overall expenses for training of 2 experts for 15 days in establishment of standardization system, standard drafting methodology, planing of standardization, quality management system and quality assurance in the D.P.R of KOREA.

May - June Juche 87(1998)

## 2. Metrology

- A. CSK shall provide STENO the calibration instructions on mass measurement, pressure measurement, Volume measurement, Liquid measurement including design and elaboration method of volume meter and standard weights.
- B. CSK shall provide STENO with standard weights.
- C. CSK shall cover overall expenses for training of 2 Lao PDR experts for 15 days in volume and mass measurement.

May - June Juche 87(1998)

The STENO shall prepare to send 4 trainees to Pyongyang at fixed date and trainees should be able to follow the training course in English.

The STENO shall make efforts to set up the national systems of Standardization, Metrology and Quality Control by the technical information provided by and experts trained in CSK.

Done at Vientiane, Lao PDR.

Dated 7 November Juche 86 (1997)

Signed by:



Kim Gwang Ho  
on behalf of  
Committee for Standardization  
of the D.P.R. of Korea.

Signed by:



Nheune SISAVAD  
on behalf of  
Science Technology and  
Environment Organization  
of the Lao PDR.

## Report on Activities of the Standardization and Metrology Experts Delegation of the D.P.R of the Korea in the Kingdom of Cambodia

The Standardization and Metrology Experts delegation of the D.P.R of Korea visited PhnomPenh, the capital of the Kingdom of Cambodia November 10 to 19 Juche 86 ( 1997 ) to implement the project " Training of personnels in the field of standardization and metrology for conformity assessment among Developing Countries "

The delegation consists of 4 members :

**Dr. Kim Gwang Ho** , Director of Bureau of Metrology , State Commission of Science and Technology, **Dr. Sin su Gil** , Director of Bureau of Quality Certification, Committee for Standardization ( **CSK** ), **Mrs. Hong Sok Chae**, Officer of Bureau of Quality Certification **CSK**, **Mr. Ri Ha Sop**, Officer of Bureau of Standardization **CSK** .

During the stay in Phnom Penh the delegation has meeting with practical experts including **MR. Chhay Neth** , Deputy Director of Technical Department , Ministry of Industry , Mines and Energy (**MIME**), **Mr. Chheng Uddara** , Technical Officer of Technical Department , **MIME** , **Mr. Ho Kadeb**, Director of Weights and Measures Department , **MIME** and **Mr. Hang Moeun**, Deputy Director of Foreign Trade Department , Ministry of Commerce to survey practical situation of standardization , metrology and quality ( **SMQ** ) .

The delegation visited **MIME** Testing Laboratories, Verification Laboratories and **CAMCONTROL** laboratories and was informed of practical condition of these laboratories, status of testing and verification in Cambodia.

The delegation presented the papers for lectures on the successes and experiences of the D.P.R. of Korea in **SMQ** and was consulted by the Cambodian experts.

" Standardization in the D.P.P of Korea "

- **Dr. Sin Su Gil**.

" Metrology in the D.P.R. of Korea "

- **Dr. Kim Gwang Ho**.

" Quality Certification in the D.P.R. of Korea and ISO 9000 family of standards "

- **Mrs. Hong Sok Chae**.

The papers were interested by the Cambodian experts.

The delegation had a clear view of the practical conditions in **SMQ** in Cambodia through the meetings with experts, the visits and information provided by the **MIME** and **CAMCONTROL**.

Cambodia has the institutional framework of standardization, metrology quality control reflecting her national properties even though they are not sufficient to be run.

They are being operated according to 12 of Council Ministers' Sub-Decrees, Council Ministers' Decisions, Ministry of Industry's Notice and Decisions.

Law on Weight and Measure formulated in Juche 83 (1994) is submitted to the Council of Ministers for consideration. Sub-Decree on Cambodian Industrial Product Standard was drafted in Juche 85(1996). Factory Law in Juche 85 (1996) and Sub-Decree of Agricultural Material Standards in Juche 86 (1997).

The Technical Department of the **MIME** consisting 72 members are being responsible to **SMQ** and under the leadership of it there are 4 units respectively responsible to standardization metrology and quality concerns and at provincial and city level there are 22 services dealing with the industrial matters including **SMQ**.

Under the leadership of the Technical Department of **MIME** the Weight and Measure Department ( verification Laboratory ) consists of 12 personnel's and is in charge to nation wide verification and control of weights and measures.

The **MIME** has been registered as the **ISO** subscriber member for Cambodia January 1 Juche 84 (1995) and has the plan for membership of **OIML**, **IEC** and **ILAC**, and 169 Cambodian experts have been trained through 13 international training seminars or workshops of short or long term and 35 experts attended 4 international meeting organized by the International organizations

The national administrative system in **SMQ** is not yet established.

Even though it is said that **MIME** is responsible to **SMQ** in nation-wide there is no independent system of administrative management representing the **Kingdom**, in **SMQ**.

Especially administrative management of **SMQ** shall be operated within the unified and centralized national framework but now it is decentralized in other ministries such as Ministry of Commerce, Ministry of Agriculture, Forestry and Fishery and Ministry of Public health

The separate departments respectively responsible to standardization, metrology and quality control do not exist and they belong to the Technical Department of **MIME** and there only 4 persons, in the Technical Department of **MIME**, responsible to standardization.

There is no unified and centralized standardization system to responsible to formulate standards of product or service in various fields of economy and social life and to implement of standards in nation-wide and no national standard has been established yet.

10 ministerial standards of **MIME** are adopted and used in quality testing but they are only testing parameters to be analyzed.

In other hand the **CAMCONTROL** conducts testing of samples according to the foreign standards for example in the case of gasoline or petrol **ASTM** standard are used for testing or analyzing of them.

Further more the standardization is a new concept to this country and there is only one expert in standardization.

For quality control the unified national system of quality control and quality assurance is not yet established

National quality certification system does not exist and quality test and analysis are separately carried out for quality of products in the factory by MIME and for the goods in market and export products by CAMCONTROL.

Due to no existence of quality certification system a lot of losses are brought to the country and producers.

For example some local products like smoked fish, fish paste, shrimp prawn etc. are brought to neighboring country and there upgraded and put into a good looking container for export. In the case of rubber if export it to neighboring country it just get a very low price but if it bears with product certification it can be exported to overseas with high price.

These are simple example and there are many empty spaces in setting up and managing quality control and quality certification systems in this country including accreditation system of testing and calibration laboratories, quality management system and formulation of quality-related guides and standards etc.

For metrology the unified and centralized national administrative system has not been established

The equipments and instrument for metrological verification are so limited that the standard instruments in the verification laboratory of the MIME are all together only 3 balances, 9 volume meters and some set of micro standard weights and the standard weight for industrial use and only 12 experts are employed in the laboratory, who hardly work due to the lack of skill and experiences in metrology.

Especially there is no verification instructions and the verification of manometers and clinical thermometers are left to the individual company itself, which are directly related to the human life.

In the rural area metrological control is left itself due to the lack of standard instruments.

It was requested by the officials and experts concerned that the independent bodies of standardization, metrology and quality control should be established and each of them has to be operated according to its own property.

With the consideration of such a practical situation of Cambodia the delegation concludes to assist within the limitation of the project as follows.

#### 1. Standardization and quality concerns

##### a. CSK shall provide MIME guides and methodological standards

- Directives of drafting standards

- ISO soon family standards and certification of product and quality system.
- Directives on economic effectiveness.

b. CSK shall train 1-2 Cambodia experts of standardization and quality control for 15days in Pyongyang by the expense the project defined  
May - June Juche 87 ( 1998 )

## 2. Metrology

a. CSK shall provide MIME with versification instructions on mass measurement, pressure measurement, volume measurement including design and elaboration method of volume meters and standard weights.

b. CSK shall provide MIME with the standard weight of mg and g

c. CSK shall train 1-2 Cambodian metrological experts in volume, mass and liquid measuring methods and in hierarchy system of verification for 15 days in Pyongyang by the expense the project defined.

May - June Juche 87 ( 1998 )

\* Official language in training seminar shall be English.

MIME shall guarantee as follows

a. MIME shall be responsible to prepare the trainees within 4 members for the training and to dispatch them to arrive in Pyongyang fixed date.

b. MIME shall make efforts to set up the independent administrative system of SMQ and increase Governments budget to provide testing and verification laboratories with analyzing, testing and calibrating equipment's and standard in instruments.

c. MIME shall wage the campaign for enlightening of SMQ and make the experts trained to work at the proper positions.

CSK and MIME shall try to make cooperation and close relations between two organizations in the sphere of SMQ.

Date. November 19 Juche 86 ( 1997 )

Signed

Kim Gwang Ho



On behalf of  
Committee for Standardization  
D.P.R. of Korea

Hul lim

Under-Secretary of State



On behalf of  
Ministry of Industry, Mines and Energy  
Kingdom of Cambodia

## List of Participants (Standardisation)

No	Name	Sex	Position	Birth date	Passport number
1.	CHANSOPHA	MALE	TECHNICAL DEPARTMENT MINISTRY OF INDUSTRY, MINES AND ENERGY.  OFFICER	07.7.1967	S0010180
2.	EHAN BORIN	M	TECHNICAL DEPT- <del>OFFICER</del> MENT OF MINISTRY OF INDUSTRY MINES AND ENERGY.	17.01.1959	S0007678
3.	Chanthaleumary Khemay	F	STENO (DIRSM)	06/04/1971	S-5880-94
4.	PHANTAVONG Rakomy	M.	STENO (DIRSM)	25/11/57	S-5881-94
5.	ATTAULLAH JAN	M	Managers (Planning)	20-12-1952	

## List of Participants (Metrology)

No	Name	Sex	Position	Birth date	Passport number
1.	Brunthiam	male	Senior Technology Officer, environmental org. (STENO)	12.7.57	S.O. 7994
2.	Veng Kham	male	<del>Officer</del> #	7.6.70	S.O. 12
3.	Chan. Satha	M.	Metrology officer.	09.11.1960	S. 0009652
4.	SENG-TOUCH	M	—  —	20/10/1967	S0018037
5.	SHEIKH MUHAMMAD ARIF	M :	RESEARCH SCIENTIST	07.05.1956	F217907

## CONTENTS OF LECTURES

<i>Topics</i>	<i>Lessons</i>
 <b>Standardization</b>	
1. Standardization in the DPRK	1
2. The Standardization Law of the DPRK	2
3. General concepts of standardization	2
4. Planning method of standardization	2
6. Calculation method of economic efficiency of standardization	
7. Management of computerized database on standards	3
8. Quality certification and ISO 9000 family standards	3
9. Trends of standardization on environmental management	2
10. Standardization in enterprises	2
11. Questions and answers	8
Total	29
 <b>Metrology</b>	
1. Measurement units and verification system	1
2. Expression of uncertainty	1
3. Concept of mass measurement	1
4. Structure, technical measurement and elaboration of the weights	2
5. Structure and verification method of spring scale	2
6. Concept of pressure measurement	2
7. Verification method of industrial manometer	2
8. Concept and verification method of flow measurement	2
9. Elaboration and verification method of flow meter	2
10. Structure and verification method of oil feeder for automobiles	1
11. Concept of volume meter	
12. Repair and calibration of balance	3
13. Experimental practice, questions and answers	9
Total	29

**Recommendations to the Committee for Standardization of the D.P.R of Korea**

We, all the participants to **the 1<sup>st</sup> International training course of personnel in standardization and metrology** held in Pyongyang, D.P.R of Korea, express our complacence to the Committee for Standardization (CSK) for your successful organization of this training course.

Especially, this training course became the road map for the developing countries, Lao PDR and the Kingdom of Cambodia to explore the road to set up and operate their own national system of Standardization, Metrology and Quality Management.

All the lecturers have sincerely transferred to us all their knowledge's and experience and CSK, CIQM transferred one set of gram standard weights, one set of milligram standard weights to Lao PDR, Kingdom of Cambodia and Islamic Republic of Pakistan, one piece of secondary standard of kilogram to Pakistan and many documents which are very useful and important for activities in standardization and metrology.

We have not only attended to this training course but also we have seen your beautiful and clean city and monuments, scientific research institutes, and Exhibition Halls built by the Korean people under the wise leadership of the Great leader **Kim Il Sung** and Dear leader Comrade **Kim Jong Il**.

We are sure the training course accomplished its targets successfully and propose comments as follows:

1. The training course shall be divided to the specific subject, and the period of training course shall be longer than at least a month, and more practices shall be done, at least a half.
2. We need more practices than lectures because the practice is a easy method to understand establishment and implementation of standards and metrology system in each country.
3. We invite your scientists' teachers to Cambodia, Lao and Pakistan to give lectures and practical experiments.

4. Let us promote cooperation and exchange in the field of standardization and metrology including regular exchange of information and inter-comparison and calibration of metrological instruments.

For the prosperity of the developing countries we will cooperate and help each other, in standardization and metrology.

Signed by   
MUHAMMAD ARIF  
PAKISTAN 20/07/98.

  
CHOU. SETHA  
CAMBODIA  
20/07/98

Raksomy PHAN THAVAN  
LAOS  
 20/7/98

  
Khunxay  
2-20/7/98.

# CERTIFICATE

This is to certify that **Sang Toch**  
has successfully completed "The Training of Personnel in the Field of  
Standardization and Metrology for the Conformity Assessment among  
Developing Countries" from July 8 to July 20, Juche 87(1998) in Pyongyang,  
the Democratic People's Republic of Korea organized by the Committee for  
Standardization of the DPR of Korea under the auspices of Perez-Guerrero  
Trust Fund(PGTF) of the Group of 77.

The Committee for Standardization  
the DPR of Korea

