
ACTIVITY REPORT FOR
Small Training Course for APLMF Working Group on Quality Measurement of
Agricultural Products (QMAP)

Final version on 13 August

Dates: 3 (Tuesday) – 6 (Friday) July 2018

Venue: CBWM (Central Bureau of Weights and Measures), DIT (Department of Internal Trade), Ministry of Commerce, 563 Nonthaburi Rd., Bang Krasor, Muang, Nonthaburi, Thailand

Host: CBWM, DIT, Ministry of Commerce

Trainers/coordinators:

- (1) Mr. Surachai Sungzikaw, CBWM, DIT, Thailand / WG Chair
- (2) Ms. Haslina bte Abdul Kadir, NMIM (National Metrology Institute of Malaysia), Malaysia / WG Co-Chair
- (3) Dr. Tsuyoshi Matsumoto, NMIJ (National Metrology Institute of Japan), AIST (National Institute of Advanced Industrial Science and Technology), Japan / former WG Chair
- (4) Mr. Norihiro Yoshida, Kett Electric Laboratory Co. Ltd., Japan
- (5) Ms. Mihoko Yabe, Kett Electric Laboratory Co. Ltd., Japan

APLMF Rep: Dr. Tsuyoshi Matsumoto

1 Objective of the Training

Grain moisture is an important area of measurement in legal metrology that is closely related to our confidence in international trade, fair trade in transactions in each economy and quality of life. To improve skills in this field of measurement within the region, the APLMF Working Group (WG) on Quality Measurement of Agricultural Products (QMAP) was established in 1997. This WG conducted 12 training courses and workshops in the period from 2001 to 2017. In addition, this WG provided liaison activities between OIML TC 17/SC 1 (humidity) and TC 17/SC 8 (instruments for quality analysis of agricultural products). In 2017, the WG provided an APLMF Guide Document on Rice Moisture Measurement on the APLMF website.

At the 24th APLMF Forum Meeting in October 2017, the chair of this WG was transferred from Dr. Tsuyoshi Matsumoto (NMIJ, Japan) to Mr. Surachai Sungzikaw (CBWM, Thailand). At the same time, Ms. Haslina bte Abdul Kadir (NMIM, Malaysia) was assigned as the co-chair of this WG. The objective of this small training course was to assist the transition process of the WG to the next generation.

2 Objectives:

This training course aimed to provide an opportunity for the former chair to transfer his knowledge and experience to the new chair and co-chair. In addition, APLMF President,

Mr. Stephen O'Brien (MBIE, New Zealand) proposes a scheme in which APLMF WGs be maintained with representation from several member economies. This training course was a trial of the new scheme where a WG consisted of several experts from the region.

This course provided participants with the knowledge and skills to:

- implement international standards and recommendations in a practical manner;
- participate actively as a member of the WG on Quality Measurement of Agriculture Products (QMAP), and
- provide leadership within the region by supporting the development and delivery of training programs.

To achieve the above objectives, the content of this training course was different from those of a conventional MEDEA training course in legal metrology. Although the content was still composed of lectures and practical components, this course targeted experts at a higher level who would support the work of the WG on QMAP.

3 Target Group

The organizers expected a maximum of ten participants who would become the new members of the QMAP WG. It was also expected that the applicants were the officers and technical experts working in national/regional authorities or research institutes in metrology, who were involved in quality measurement of agricultural products for more than two years. Participants, who were responsible for a capacity building program in each economy, were particularly welcome. Those who participated in the APLMF training courses or workshops on QMAP in the past were also encouraged to attend.

4 Training Course Programme (also see Table 1 in Annex 1)

4.1 Opening ceremony on Tuesday

The training course started off with an opening ceremony at a meeting room in CBWM. On behalf of the host economy, Mr. Surachai Sungzikaw (CBWM) delivered an opening address. Then, each participant gave a self-introduction.

4.2 Economy report on Tuesday

At the first seminar (S1), one representative from each of the participated six economies provided an economy report on current situation in traceability and metrological control systems on QMAP including grain moisture meters. Their reports also included general introduction of metrological control systems in each economy both on scientific metrology and legal metrology.

Among them, Mr. Surachai provided a report on behalf of Thailand regarding legal metrological control system on moisture meters. He introduced a new method for on-site inspection of meters using a specially-designed truck. Dr. Matsumoto introduced two separate legal control systems used in Japan: (1) general measuring instruments and (2) moisture meters. He explained that another ministry responsible for agriculture (MAFF) supervised the latter system and private sectors maintained it. Mr. Yoshida provided a report of Kett Electric Laboratory Co. Ltd. (hereafter, Kett) including the traceability

system on rice moisture. Ms. Haslina introduced metrological control systems on moisture meters. She also introduced a regional training scheme and she proposed a need for certification system on the competence of the trainers and trainees. Mr. Sophearath Ing introduced activities of NMC both as the national metrology institute (NMI) as well as the legal metrology authority (LMA) of Cambodia. Mrs. Eri Wijayanti introduced the roles of DoM, Indonesia as the LMA supporting the national framework in legal metrology as well as the metrological control system on moisture meters. She also introduced cooperation with other organizations in agricultural measurements (BULOG and BPS). Mr. Thuc Ha Thanh introduced the roles of STAMEQ, Viet Nam as the LMA. He also introduced MPEs (Maximum Permissible Errors) applied to the moisture meters in the economy.

4.3 Lectures on Tuesday, Wednesday and Thursday

Dr. Matsumoto provided the first lecture (L1 in Table 1) on grain moisture measurement and roles of the WG on QMAP. He included topics on (1) basic understanding of grain moisture measurement, (2) importance of grain moisture measurement from the society, (3) outline and history of APLMF and WG on QMAP, and (4) roles / future directions of WG. After the lecture, Mr. Surachai provided comments including a comprehensive summary of the lecture.

Ms. Yabe provided lectures (L2 & L4) on oven drying methods using related ISO standards and how to prepare reference samples of rice. In these lectures, there was a discussion on the comprehension of the ISO standards including the result of inter-comparison conducted by ISO.

Ms. Yabe also gave a lecture (L6) on how to evaluate the quality of agricultural products other than moisture content such as, shape, color, breakage, foreign matters, bulk density and so on. This lecture was based on ISO 7301 and the procedures used in Japan. This lecture was introduced for the first time because this training was designed for high-level experts with an excellent understanding of quality measurements. As a result, some participants showed an interest in it and asked questions on the testing procedures used to measure quality. On the other hand, some participants were not familiar with the contents of this lecture. It might be due to a fact that the elements of quality, other than moisture content, were controlled by other sectors outside metrology.

Mr. Yoshida provided lecture (L3) where he explained the underpinning principles of moisture meters and the checking method of these meters. After this lecture, Mr. Yoshida and Ms. Yabe gave demonstrations showing how to check moisture meters using real moisture meters.

Dr. Matsumoto gave lecture (L5) where he explained traceability and uncertainty when using grain moisture meters. It included consideration of uncertainty in legal metrology and the activities in OIML TC3/SC5 related to the new guide document (G 19). This lecture also included activities in OIML TC17/SC1 & TC17/SC8 and an outline of ISO 7700 for checking meters.

Mr. Surachai provided lecture (L7) on quality measurements on other products in Thailand. He introduced activities on quality inspection of 'longan' (a tropical tree with fruit) and measurement of starch content of cassava (raw material for tapioca) using a density measurement.

4.4 Discussion on the WG on Thursday and Friday

Dr. Matsumoto chaired the sessions for general discussion on WG. The summary of the discussions are as follows.

4.4.1 Support from Japan and the private sector

New chairs (Mr. Surachai and Ms. Haslina) requested continuous support by Dr. Matsumoto and Kett including attendance at the next large-scale training course in Pattaya. Dr. Matsumoto personally appreciated their suggestions; however, he declined his attendance at this course because it would be inappropriate if a former chair led this course. The chairs then agreed that the next course would be led by themselves.

In response to a request from the chair, Mr. Yoshida (Kett) agreed to support training courses in the future by providing equipment and practical skills. They discussed support from private sectors more generally, and they confirmed that WG still needs such support in the field of QMAP which is closely related to the instruments and skills obtained commercially. On the other hand, the participants agreed that WG shall be open-minded to any other companies. Dr. Matsumoto commented that the APLMF training programs should ideally be conducted with the knowledge and skills of the public sectors. He also added that previous WG chairs searched for competent companies for more than 20 years. The WG could only identify Kett as a suitable company which had high competence and the capacity and willingness to support international activities within the APLMF region.

4.4.2 Planning of the next large-scale training course in Pattaya in December 2018

The schedule of the next large-scale training course in Pattaya was decided tentatively from 3 (Mon) to 7 (Fri) December 2018. Although it was originally planned in the last week in November, it was found to be inconvenient because APMP (Asia-Pacific Metrology Programme) meetings were going to be held in Singapore in this week. Ms. Haslina needed to attend the earlier part of these meetings.

The participants agreed that trainers of this large-scale course would attend from Thailand, Malaysia and Japan (Kett). Assistant trainers may participate from Cambodia, Indonesia and Vietnam. Some of the trainers will visit the venue in advance on 29-30 November for preparation and discussion.

Mr. Surachai reported that the venue of the large training course would be Eastern Weights and Measure Center (EWMC) of CBWM in Chon Buri (30 min by car from Pattaya). He also noted that the host would provide 4 or 5 ovens for practical sessions, and it would be a large-scale course with 4 or 5 groups (28-35 trainees in total). A hotel in Pattaya will be selected for accommodation.

As a formal procedure, they agreed that a draft invitation would be circulated 2 months before the course in early October. However, it was pointed out after this training course that this timing was too late, and the chairs were encouraged to prepare the draft as soon as possible.

4.4.3 Another small meeting in CBWM in October

Dr. Matsumoto proposed a small WG meeting in October to compensate for his absence at the large-scale course, and the two chairs totally agreed this was necessary. This meeting will provide more practical suggestions for the chairs and trainers in Thailand in order to ensure they are confident they can prepare for the large training course in early December. This will be a two-day meeting at CBWM in the week of 22-26 October, and Dr. Matsumoto and Ms. Haslina will attend from abroad.

Although the trainers looked for an alternative method including an online meeting, Mr. Surachai and Ms. Haslina requested a face-to-face meeting; all trainers agreed that it would be much more effective if MEDEA project could support.

4.4.4 Future training courses in 2019 and later

WG discussed future training courses in 2019 and later. The participants agreed that new chairs would seek a host economy, particularly from Cambodia, Indonesia, Malaysia, Philippines and Viet Nam. The three foreign participants from Cambodia, Indonesia and Vietnam were requested to discuss a possibility of hosting after going back to the home institute. Possibility of a long course for two weeks for advanced experts would also be considered.

4.4.5 Membership of WG

The three foreign participants were requested to be semi-permanent WG members. If they move to another section/role in the institute, they will assign an alternative member from their economy. They were also requested to serve as assistant trainers at the large-scale training course. Philippines and Mongolia, which were absent in this training course, were also requested to be WG member(s). The chairs will invite the two economies to be WG members at 25th Forum Meeting, and/or call for participants from the economies to the large-scale training course. More generally, they agreed to keep the new policy of APLMF that WG should be maintained by a real group of international members.

4.4.6 Future directions of WG

Other discussions were made on future directions of WG such as, expansion of scope to other products/qualities, proposal for a new certification scheme of competent trainers and trainees proposed by Ms. Haslina, need for inter-comparisons, more practical contents on traceability/uncertainty, contents to prevent fraud, cooperation with OIML & ISO, and so on.

Regarding the scope, new subjects of product/quality other than rice moisture varied depending on the interests of the participating economies and therefore, the participants could not decide a priority. It was also pointed out that additional trainers and cost would be needed to prepare a practical component for the new subjects. They concluded that WG would start with adding a long economy report or a lecture on a new subject at the large-scale training course.

The participants also agreed that WG shall maintain its valuable assets. Dr. Matsumoto proposed to share electronic files of the WG using Google Drive after this course is finished.

4.5 Closing ceremony on Friday

The closing ceremony was held at the meeting room of CBWM. Mr. Boonyarit Kalayanamit, as Director General of DIT, attended this ceremony and gave a closing remark on behalf of the host economy. He mentioned the importance of agricultural measurement for the economy of Thailand which was producing and exporting many agricultural products. He stressed that measurement errors in transactions lead to significant losses for farmers as well as for the entire economy. He expressed sincere appreciation to the former WG Chair for handing over the role to Thailand and requested continuous support for the new chair.

After he left the room, Mr. Surachai awarded certificates of completion to the three participants from Cambodia, Indonesia and Vietnam, and ten local participants from Thailand. After that, Dr. Matsumoto and Ms. Haslina made short closing remarks.

4.6 Technical tours on Thursday and Friday

Two laboratory tours were provided regarding (1) quality measurement of agricultural products including rice moisture meters and (2) calibration/inspection of the measurement instruments under legal metrology on weight (mass), length and volume. A tour to the Museum Siam in Bangkok was also provided and it helped the foreign participants to understand the history, culture, style of living and what Thai people regard as important. This museum was built in 2007 at the site of the former headquarters of the Ministry of Commerce.

4.7 Equipment, instruments, materials and samples

A local distributor of Kett rented resistance-type moisture meters, capacitance-type moisture meters, infrared-heated moisture balances, checker kits, and sample grinders for demonstration and display. CBWM prepared reference samples of paddy rice for demonstration.

4.8 Text books and documents

For the benefit of the participants, APLMF Secretariat provided an online storage 'Google Drive'. Many participants accessed the storage using private PCs and Wi-Fi (Wireless LAN) provided in the venue. Most of training materials (program, lecture slides/documents, economy reports and photos) were shared with the participants, observers, host staffs and the secretariats of PTB and APLMF.

4.9 Support by the host economy

The host of CBWM, DIT provided dedicated and well-organized support. About 20 staffs attended from CBWM in Nonthaburi. With MEDEA's financial support, the host institute provided (1) a meeting room in CBWM, (2) accommodation in the Richmond-Style Convention Hotel including necessary meals, (3) lunches and coffee/tea breaks from

Tuesday to Friday, (4) three dinners from Tuesday to Thursday, (5) transportations by the vans of CBWM from/to the Bangkok International Airport, CBWM in Nonthaburi and the hotel, (6) transportation by a boat along the Chao Phraya River to/from the museum, (7) equipment and consumable materials, and (8) medical assistance for a foreign participant.

5 Highlights/ Lessons Learned

5.1 Were the objectives of the training course met?

Yes. In the limited time frame of 4 days, most of the items in the objectives was covered and discussed. Some of them were also demonstrated.

5.2 Was the right target group attracted by the training?

Yes. The key persons necessary to take over the WG, i.e., former chair, new chair, new co-chair and the experts from a manufacturer were present. In addition, three foreign participants attended from Cambodia, Indonesia and Viet Nam as new WG members. All of the three belonged to a national authority in legal metrology responsible for grain moisture measurement and participated in previous training courses on rice moisture measurement. From Thailand, ten participants attended from CBWM including its four local verification centers. They had practical experiences in testing and verifying moisture meters.

Regarding English conversation, the trainers could communicate successfully with most of the participants.

5.3 What was the feedback of the participants?

During the training course, the organizer gave an instruction with a link to the feedback system (Survey Monkey). After the course, five participants including two trainers replied using this system. Scores and comments were summarized as follows (Note, E: Excellent / G: Good / S: Satisfactory / D: Disagree).

5.3.1 Q4: Logistics for the training?

✓ Travel, visa and accommodation:	E 40 % / G 40 % / S 20%
✓ Appropriateness of the dates:	E 40 % / G 60 %
✓ Preparation, advance information:	E 20 % / G 40 % / S 40%
✓ Quality of pre-activity information:	E 20 % / G 60 % / S 20%

5.3.2 Q5: Rating of the training?

✓ Quality of training materials:	E 20 % / G 80 %
✓ Relevance of topics for your work:	E 40 % / G 60 %
✓ Competence of the trainers:	E 20 % / G 80 %
✓ Clarity of presentation:	E 20 % / G 80 %
✓ Clarity of the practical sessions:	E 20 % / G 40 % / S 40%

5.3.3 Q6: Group work?

- ✓ Activities were relevant: E 20 % / G 80 %
- ✓ Group discussions assisted a better understanding of the topic:
E 20 % / G 80 %
- ✓ Group size facilitated discussion and sharing:
E 20 % / G 80 %
- ✓ Ice breaker activity encouraged interaction with other participants:
E 20 % / G 40 % / S 20% / D 20%

5.3.4 Q7: What new skills and knowledge?

- (1) *Measurement methods, types of moisture meters, collection and storage of samples, reference method, testing method for meters, and key activities/future focuses of QMAP.*
- (2) *Current situation and needs on agricultural measurement in the participating economies.*
- (3) *Skills, especially in procedure of how to test moisture meters*
- (4) *Checking the moisture before harvest. It is very important for farmers.*
- (5) *Method of analysis for rice specification*

5.3.5 Q8: How will the skills and knowledge help you in your workplace?

- (1) *Understood the objectives of QMAP. Helped to work together with WG members.*
- (2) *It helped to formulate better technical requirements on moisture meters for regulation.*
- (3) *I will help farmers to conduct good measurement & good quality control before harvest.*
- (4) *I will convey what I learned to the farmers and help them improve the quality of rice in accordance with international standards.*

5.3.6 Q9: How will the skills and knowledge contribute to your economy?

- (1) *It helps to establish a system of supervision of rice moisture measurement.*
- (2) *A good technical requirement means that moisture meters are treated with better verification system and testing infrastructure.*
- (3) *I learned from other economy to check the moisture contents of paddy and other products before harvest. It will increase farmers' income by maintaining the quality of the products.*
- (4) *I will study the application to moisture measurements of other products such as cassava, sweet potato ...*

5.3.7 Q10: What was the most useful part of the training?

- (1) *Knowledge and experience of the former chair.*
- (2) *It was a good to have face-to-face discussions. This training course addressed its main objectives to transfer WG to the new generation.*
- (3) *The parts on providing reference samples, traceability and activities in OIML.*
- (4) *All ASEAN members should have the same standard for moisture measurement.*

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- (5) *Traceability of grain moisture measurement and activities in OIML & ISO*

5.3.8 Q11: How could the training course be improved?

- (1) *More demonstrations of some tests.*
- (2) *For more discussions for the next course in Pattaya, an additional small meeting should be proposed in October in CBWM.*
- (3) *Add some ice breaker to encourage all participants to participate in discussion. Participants other than trainers kept silent in this course.*
- (4) *Lecture on moisture measurement in animal feed, as a mixture of many products.*

5.3.9 Q12: Please rate the training overall?

- ✓ E 20 % / G 60 % / S 20%

5.3.10 Q13: Any other comments?

- (1) *In next time, the participants should present new ideas or tasks for WG.*
- (2) *Such a small meeting is also useful. I encourage MEDEA support such an event.*
- (3) *In a training course, we usually summarize measurement results using Excel. In the next time, a practice for summarizing the results should be added.*
- (4) *In the hotel, I was disturbed with the noise (knock) by other guests at night.*

5.4 What were the highlights of the course?

This course was a unique event, different from conventional training courses in APLMF/MEDEA because it was intended to hand over the WG from the former chair to the new chairs and new WG members. It was also intended that the WG in the new generation would be maintained by a real group of experts.

Considering the nature of this course, most of the time was spent discussing the roles/activities of WG and future directions. The main discussion concerned how to prepare for the next large-scale training course in Pattaya. As a result, practical components were provided only in a demonstration by the trainers. There were no group practical activities.

The visit to the laboratory of CBWM showed participants how to design a testing laboratory. This laboratory was rated as one of the advanced laboratories for grain moisture measurement at the national level in the APLMF region.

5.5 Lessons Learned: What recommendations would you give to the MEDEA Coordination Committee (CC) and trainers of other courses?

5.5.1 Transfer of assets

The keywords 'train the trainers course' has been the most important objective in the APLMF training courses as well as in the MEDEA project. An important lesson learned from this training course was closely related to the inquiries; (1) how to continue a matured

training program to the next generation and (2) how to transfer such a program to the level in each economy/region. Although the next MEDEA project 2.0 continues for another 3 years until 2020, we should consider how to take over the outcomes of MEDEA projects. Current training activities should be maintained voluntarily in each economy/region even after the MEDEA project is finished.

5.5.2 Synergy among different fields

Another important objective of MEDEA is the synergy between different sectors that manage agriculture products. In agricultural measurements, we frequently face complex circumstances in which a measurement field is maintained by several independent sectors in both government and semi-private organizations. These circumstances vary significantly in each economy. Developing synergy among different organizations is another important lesson to be remembered when we plan training programs on agricultural measurements.

5.5.3 Practical components

It will be necessary to consider conducting training courses under WG on QMAP that are longer events than those generally organized by APLMF and MEDEA. This is because grain moisture measurement strongly depends on practical skills in a laboratory. Practical component using real instruments therefore are a core item to be learned. Prior to 2005 some training courses lasted for two weeks in order to cover all the necessary practical sessions. The organizers consider such a practical component is necessary and it should be continued in the future.

5.5.4 Support from private sectors

The new chairs requested continuous support from Kett and it was another lesson to be noted. Ideally, the WG should not continue relying on the voluntary support from one private company. However, this training program requires access to laboratories, specific equipment, measuring instruments and experts who practical knowledge about how to use these instruments. The organizer of these training courses, who belongs to a public organization in many cases, still needs support from the private sector to deliver effective training. Such a situation also applies to other fields in metrology not only to agricultural measurement. We need to find a good compromise for continuing such a training program in cooperation with the private sector.

5.5.5 Preparation for training courses and logistics

As was mentioned, a training program on agricultural measurements strongly depends on facilities, equipment and practical knowledges/skills. The preparation phase therefore plays an important role and is directly related to the quality of the training. An advanced meeting and/or a visit to the laboratory for preparation, which is attended by the organizers/trainers, is recommended. Such a procedure for preparation is particularly important for this WG at present as it is in a transition period.

A set of sufficient and homogeneous reference samples is the most important item for a training course on QMAP. In addition, some samples with high moisture contents deteriorate quickly. This is why a training course must be scheduled just after a harvest

season. Preparation of reference samples with different moisture levels also needs both laboratory facilities and a high level of practical skills. A pre-visit to the laboratory is required to ensure the reference samples are sufficient and of a high enough quality to support the training course.

A paper-less operation with Google Drive worked well to lessen the workload of the host as well as the pressure of trainers for submitting a complete set of documents in advance. We encourage continuing such an operation.

5.5.6 Communication in face-to-face

In legal metrology authorities (LMAs) in Asian economies it is frequently seen that communication by e-mail does not work successfully, and their staff still prefer face-to-face communication. Some of them may not be familiar with a new technology such as an online meeting. Therefore, the organisers of this training course requested MEDEA to provide funding to support the trainers so they can adequately prepare for a larger training course.

6 Next Steps/ Follow-up

6.1 What are the agreed next steps after the training? What will you do as a result of the training?

It was agreed that the WG would prepare for the large-scale training course in Pattaya, Thailand under the leadership of the new chair and co-chair. Cambodia, Indonesia and Vietnam will participate in this course as assistant trainers. A manufacturer of moisture meters (Kett) also agreed to support this training course. Regarding the schedule, a time frame from 3 to 7 December 2018 was agreed tentatively. A draft invitation should be provided and circulated in August.

In order to prepare for this large-scale course, it was also agreed that a small two-day meeting would be held at CBWM, Thailand in the week 22-26 October. The former chair and co-chair would attend this meeting outside from Thailand. Support fund of MEDEA to enable this meeting will be sought from the chair or former chair.

The new chairs seek host economy(ies) for the training course(s) in 2019 and later. Cambodia, Indonesia, Philippines and Viet Nam were considered as candidates in this training course.

WG will continue revising the Guide Document on Rice Moisture Measurement (2017).

6.2 What are the suggested follow-up activities?

6.2.1 Transfer of assets of WG to the next generation

Many economies have not set up a reliable traceability system on grain moisture measurement. Regardless of the transfer of WG, they still need practical knowledge on reference method and calibration/usage of moisture meters. They of course, request continuing such a training program. In addition, the contents of the training program including documents/materials are well matured and the WG has sufficient experience

and knowledge. The transfer of WG should therefore proceed carefully in order not to lose the WG's valuable assets.

6.2.2 Transfer of training activities to a regional level

The WG strongly encourages all trainees attending an international program under this WG to transfer their knowledge and skills into their regional or economy level as a trainer. The WG considers ASEAN (Association of Southeast Asian Nations) could be an appropriate candidate organization for such a regional activity.

6.2.3 Training courses in the future

Training courses in this WG should be circulated in the member economies particularly in those participating in the present training course. An advanced and long (2 weeks) course at a higher level for the trainers is also requested. Coverage of other kind of grains (wheat, corn, beans, coffee, etc.), quality other than moisture contents, evaluation of uncertainty in measurement and implementation of inter-comparisons are requested for a long time but they have not been fully realized.

6.2.4 APLMF Guide Document

The organizers noted that Guide Document on Rice Moisture Measurement (2017) was going to be utilized in many APLMF economies as a useful text book. Some non-member economies also showed an interest in this guide. In this training course, all participants were reminded to provide any comments for correction or revision of this guide and submit comment to the chairs. WG plans to collate these comments and send a new version with minor changes to the APLMF Secretariat.







Annex 1: Workshop Program






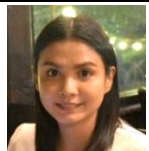




**Table 1: Small Training Course for APLMF WG on
Quality Measurement of Agricultural Products (QMAP)
at CBWM, DIT in Nonthaburi, Thailand in 2018**




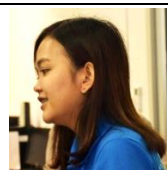




2 July (Mon)	13:30-17:00	Meeting at CBWM to prepare for training attended by Mr. Surachai Sungzikaw, Ms. Haslina bte Abdul Kadir, Dr. Tsuyoshi Matsumoto, Mr. Norihiro Yoshida, Ms. Mihoko Yabe and host staffs
Day 1 3 July (Tue) CBWM	8:30	<i>Left the hotel by van provided by the host</i>
	9:00-9:20	Opening ceremony (Surachai, Haslina and Matsumoto) / Group photo
	9:20-9:50	<i>Coffee / tea break provided by CBWM</i>
	9:50-11:30	L1: Lecture on grain moisture measurement, roles of the WG on QMAP and review of its activities (Matsumoto)
	11:30-12:45	S1: Seminar with economy reports (Chairs: Surachai and trainers) ^{*1}
	12:45-13:45	<i>Lunch break provided by CBWM</i>
	13:45-15:00	(Continued the seminar with free discussions)
	15:00-15:30	<i>Coffee / tea break provided by CBWM</i>
	15:30-17:50	(Continued the seminar with free discussions)
	18:30-20:30	<i>Welcome dinner at Restaurant, River House 1953 sponsored by CBWM</i>
Day 2 4 July (Wed) CBWM	8:30	<i>Left the hotel by van provided by the host</i>
	9:00-10:40	L2: Lecture on reference methods using ISO 712 and ISO 6540 (Yabe).
	10:40-11:10	<i>Coffee / tea break provided by CBWM</i>
	11:10-12:45	L3: Lecture on principle of moisture meters and demonstration for checking /calibrating the meters (Yoshida)
	12:45-13:45	<i>Lunch break provided by CBWM</i>
	13:45-14:50	L4: Lecture for providing reference samples (Yabe)
	14:50-15:20	<i>Coffee / tea break provided by CBWM</i>
	15:20-16:50	L5: Lecture on traceability and activities in OIML & ISO (Matsumoto)
	17:00-18:20	<i>Dinner at CBWM sponsored by CBWM. Returned to the hotel by van.</i>
Day 3 5 July (Thu) CBWM	8:40	<i>Left the hotel by van provided by the host</i>
	9:00-10:10	<i>Tour to the laboratories on QMAP in CBWM</i>
	10:10-10:40	<i>Coffee / tea break provided by CBWM</i>
	10:30-12:50	L6: Lecture on the quality of products based on ISO 7301, etc. (Yabe)
	12:50-13:50	<i>Lunch break provided by CBWM</i>
	13:50-14:10	L6: Continued the lecture (Yabe)
	14:10-14:40	L7: Lecture on products other than rice and quality measurements other than moisture content (Surachai)
	14:40-15:00	S2: Seminar with discussion on the WG (Matsumoto and all trainers) ^{*2}
	15:00-15:30	<i>Coffee / tea break provided by CBWM</i>
	15:30-17:00	S2: Continued the seminar
	18:30-20:30	<i>Farewell dinner at Restaurant, Pola Pola sponsored by PTB</i>





Day 4 6 July (Fri) CBWM and tour	8:30	<i>Left the hotel by van provided by the host</i>
	9:00-10:10	<i>Tour to the laboratories on weight, volume & length in CBWM</i>
	10:10-10:40	<i>Coffee / tea break provided by CBWM</i>
	10:40-11:40	S3: Seminar with discussion on the WG (Matsumoto and all trainers) ^{*2}
	11:40-12:30	Closing ceremony (Mr. Boonyarit Kalayanamit, Director General of DIT) and presentation of certificates to 13 participants (Surachai)
	12:30-14:00	<i>Lunch break provided by CBWM</i>
	14:00-18:20	Cultural tour to Museum Siam by boat provided by CBWM
	18:40	<i>Backed to CBWM by boat and to the hotel by van.</i>

Annex 2: List of Trainers and Participants (Table 2)

No.	Category	Name	Economy	Institution	Photo
1	Trainer/WG chair	Mr. Surachai Sungzikaw	Thailand	CBWM (Central Bureau of Weights and Measures), DIT (Department of Internal Trade) in Nonthaburi	
2	Trainer/WG co-chair	Mrs. Haslina bte Abdul Kadir	Malaysia	NMIM (National Metrology Institute of Malaysia), SIRIM in Sepang	
3	Trainer/WG former chair	Dr. Tsuyoshi Matsumoto	Japan	NMIJ (National Metrology Institute of Japan), AIST in Tsukuba	
4	Trainer	Mr. Norihiro Yoshida	Japan	Kett Electric Laboratory Co. Ltd. in Tokyo	
5	Trainer	Ms. Mihoko Yabe	Japan	Kett Electric Laboratory Co. Ltd. in Tokyo	
6	Foreign Participant	Mr. Sophearath Ing	Cambodia	NMC (National Metrology Center) in Phnom Penh	

7	Foreign Participant	Mrs. Eri Wijayanti	Indonesia	DoM (Direktorat Metrologi) in Bandung	
8	Foreign Participant	Mr. Thuc Ha Thanh	Viet Nam	STAMEQ (Directorate for Standards, Metrology and Quality) in Hanoi	
9	Local participant	Ms. Panawan Khumlor	Thailand	CBWM in Chon Buri	
10	Local Participant	Mr. Warapong Pakkut	Thailand	CBWM in Chiang Mai	
11	Local Participant	Ms. Krongkarn Mangdindam	Thailand	CBWM in Khon Kaen	
12	Local Participant	Ms. Acting Sub, Lt. Wannisa Soptomat	Thailand	CBWM in Surat Thani	
13	Local Participant	Mrs. Jintana Pengyai	Thailand	CBWM in Nonthaburi	
14	Local Participant	Ms. Pisakorn Pisankul	Thailand	CBWM in Nonthaburi	
15	Local Participant	Ms. Satanee Puruppa	Thailand	CBWM in Nonthaburi	
16	Local Participant	Mr. Sudchai Srikhajornet	Thailand	CBWM in Nonthaburi	

17	Local Participant	Ms. Wipawee Namagorn	Thailand	CBWM in Nonthaburi	
18	Local Participant	Ms. Busaya Tubtimdee	Thailand	CBWM in Nonthaburi	
19	Representative of host	Mr. Boonyarit Kalayanamit	Thailand	Director General of DIT	
20	Host staff	Mrs. Benjamas Winya	Thailand	CBWM in Nonthaburi	
21	Host staff	Ms. Mullika Tangcham	Thailand	CBWM in Nonthaburi	
22	Host staff	Ms. Paweena Hanboonsri	Thailand	CBWM in Nonthaburi	
23	Host staff	Ms. Maneerat Rodpan	Thailand	CBWM in Nonthaburi	
24	Host staff	Ms. Rapeepan Naiyajit	Thailand	CBWM in Nonthaburi	
25	Host staff	Ms. Ponglada Boonkerd	Thailand	CBWM in Nonthaburi	
26	Host staff	Ms. Maneenut Hemla	Thailand	CBWM in Nonthaburi	
27	Host staff	Ms. Amornrat Danphiphatworakul	Thailand	CBWM in Nonthaburi	

28	Host staff	Mr. Jakkit Boomkhun	Thailand	CBWM in Nonthaburi	
29	Host staff	Mr. Pirut Musikawat	Thailand	CBWM in Nonthaburi	
30	Host staff	Mr. Athirat Onbomrong	Thailand	CBWM in Nonthaburi	
31	Support staff/observer	Mr. Ratchapak Charo (Kent)	Thailand	Ngek Seng Huat Ltd. Part (local distributor of Kett)	

Annex 3 Summary of Economy Reports

Table 3: Summary of Economy reports 3–6 July 2018 at Nonthaburi, Thailand										
MEDEA: Training Course for APLMF Working Group on Quality Measurement on Agricultural Products										
Economy	Law	Who verifies?	Verification period	Type approval	OIML R59 Implementation	APLMF Guide 6 Rice MM implemented	Other agricultural products implemented	New agricultural products want to implement	Problems	Anything else
Cambodia	No	Inspectors	Grain 1 year	No	No	No				
Indonesia	Yes	Inspectors	Grain 1 year	Yes	Partially	Partially			Difference in testing procedures and available testing standards	
Japan	Yes (under MAFF)	Specified Inspection Agencies and manufacturers	1 year for inspection	No	Yes (mostly)	Yes	Protein, amylose, bulk density, appearance, foreign materials, etc.		Metrology institute do not control moisture meters.	

Malaysia	MOA in progress review of law	Currently no verification. Meters were calibrated by MOA agencies	Calibration period: 1 year	No	Partially	Partially	None	No	To synergize with MOA concerning regulation of the grain moisture measurement	
Thailand	Yes	Inspectors	2 years	Yes	Partially	Yes	Starch content in cassava tubers	Sugarcane juice, quality of paddy, starch content in durian (a kind of fruit) for predicting when it become ripe	Not sufficient number of personnel in legal metrology Bureau	
Viet Nam	Yes	Inspectors	Grain 1 year	No	Fully implemented	Fully implemented	sugar solution/ sugarcane juice		Efficient grinding without heating or absorbing moisture	

What participants wanted to be covered at the next course? (see also 5.3)

- ✓ *Cambodia: How to create our own grain moisture standard?*
- ✓ *Indonesia: Efficient grinding without heating or absorbing moisture. Measurements of density, refractive index and polarization of sugar solution or juice.*
- ✓ *Indonesia: Provide a practice for summarizing results using Excel.*
- ✓ *Japan: An ice breaker should be added to encourage all participants to participate.*
- ✓ *Thailand: More demonstrations on some test procedures.*
- ✓ *Thailand: Participants should present new ideas or tasks for WG.*
- ✓ *Vietnam: Lectures on oven method, master meter method and master sample method.*

Annex 4 Photographs

MEDEA: "Metrology – Enabling Developing Economies in Asia"



Small Training Course for APLMF Working Group on Quality Measurement of Agricultural Products (QMAP)

3 - 6 July 2018, Nonthaburi, Thailand



Group Photo on 3 July



Lectures and discussions on 3-4 July



Laboratory tours on 5-6 July



Dinners and tour on 3-6 July