

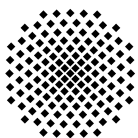


Training of Trainers on Quality Assurance in Analytical Chemistry

under the framework of
SADCMET and SADC WaterLab

Livingstone, Zambia

9 – 13 August 2010



Universität Stuttgart
Germany

AQS Baden-
Württemberg

Report on the „Training of Trainers on Quality Assurance in Analytical Chemistry“

Livingstone, Zambia, 9 – 13 August 2010

Prepared by Dr.-Ing. Michael Koch and Dr.-Ing. Frank Baumeister

Summary

A „Training of Trainers on Quality Assurance in Analytical Chemistry“ (ToT) was organized and conducted under the framework of SADC MET and SADC WaterLab with the aim to enable participants to conduct national workshops on this topic in their respective countries.

Objective

During the last years' activities in SADC WaterLab it became clear that there is a strong need to offer workshops on quality assurance in analytical chemistry on a national basis in the involved SADC and EAC countries since the previous training activities in conjunction with the established Water PT scheme did only reach a very limited number of laboratories. So the idea came up to train two people from each country to enable them to conduct such workshops and disseminate the knowledge in their countries.

Selection of participants

The training was announced using the SADC MET and SADC WaterLab information channels in all involved countries. Application for participation were sent to the SADC MET secretariat and had to be accompanied by a letter of motivation and a short CV. Selection of participants were done at a special SADC WaterLab PMC meeting on 26 February 2010 in Arusha, Tanzania. The potential participants and their employers had to state their commitment to conduct a national workshop on this topic after finalizing the training.

Structure of the training

It was decided to have a two-day training on presentation skills to give participants the skills and more confidence to present a topic in front of an audience. In a second part, scheduled for three days, the technical topics were to be presented by the participants themselves, always followed/accompanied by discussion with the facilitators. Since 28 participants were selected there was a need to divide the participants into two groups.

Trainers

Vivian Mthetwa and Evans Lwanga, both from Lusaka, Zambia, conducted the presentation skills training (see separate report) and Dr.-Ing. Michael Koch and Dr.-Ing. Frank Baumeister, University of Stuttgart, Germany, were chosen as trainers for the technical part.

Training Material

The 2nd edition of the book “Quality Assurance in Analytical Chemistry – Training and Teaching”, edited by B. Wenclawiak, M. Koch and E. Hadjicostas and published by

Springer-Verlag, Berlin, Heidelberg in 2010 (ISBN 978-3-642-13608-5) was used as training material. Each participant received one copy of the book.

In addition all participants received a CD with important guidelines with regards to QA in Analytical Chemistry. The list of contents of this CD is shown in annex 3 and a copy of the CD is also attached to this report.

The material to be presented by the participants were sent to them by 17th of June 2010 in order to allow for a proper preparation.

Participants

The two groups of participants were:

Group 1

Mr. Teddy Ditsabatho, Botswana
Mr. Ronald Gaelekolwe Samaxa, Botswana
Mr. David Kipngetich Koech, Kenya
Mr. John Paul Mandi, Kenya
Mr. Lesala Ntsoeu, Lesotho
Ms. Vuyani Monyake Tshabalala, Lesotho
Mr. Isaac Chirwa, Malawi
Mr. MacPharllen Kamwachale, Malawi
Mr. Chundunsing Baichoo, Mauritius
Mrs. Rashida Nanhuck, Mauritius
Mrs. Imogen Julitta Carew, Namibia
Mrs. Merylinda Conradie, Namibia
Mr. Pascal Kayiranga, Rwanda
Mr. Antoine Mukunzi, Rwanda

Group 2

Mr. Jean Paul Munongo, DRC
Mr. Cliff Bara, Seychelles
Mr. Vivian Radegonde, Seychelles
Mr. Meshack Bhukwana Dlamini, Swaziland
Mr. Thembinkosi Kunene, Swaziland
Mrs. Kezia Mbwambo, Tanzania
Mrs. Agnes Njau Mnene, Tanzania
Mrs. Charys Ugullum, Tanzania
Mrs. Jacqueline Kwesiga, Uganda
Mr. Aziz Mukota Kimera, Uganda
Mr. Andrew Chipongo, Zambia
Mrs. Margaret Mazhamo, Zambia
Mr. Xavier Garwe, Zimbabwe
Mr. Peter Maringa, Zimbabwe

A complete list of participants including physical and e-mail addresses is attached as annex 1.

The following group photo shows all participants and trainers:



Schedule for the technical training – group 1

Wednesday, 11 th August					
	presenter			topic	trainer
08:30 - 10:00	Mr.	Chundunsing	Baichoo	Glossary, part 1	Koch
	Mrs.	Rashida	Nanhuck	Glossary, part 2	Koch
	Mr.	David Kipngetich	Koech	Basic Statistics, part 1	Koch
10:00 - 10:30	break				
10:30 - 12:00	Mr.	John Paul	Mandi	Basic Statistics, part 2	Koch
	Mr.	Antoine	Mukunzi	Basic Statistics, part 3	Koch
	Mr.	MacPharllen	Kamwachale	Basic Statistics, part 4	Koch
12:00 - 13:00	break				
13:00 - 14:30	Mr.	Pascal	Kayiranga	Metrology and traceability	Baumeister
	Mr.	Lesala	Ntsoeu	Certified reference materials	Baumeister
14:30 - 15:00	break				
15:00 - 16:30	Mr.	Isaac	Chirwa	Metrology and traceability	Baumeister
	Mr.	Teddy	Ditsabatho	Certified reference materials	Baumeister

Thursday, 12th August

	presenter			topic	trainer
08:30 - 10:00	Ms.	Vuyani Monyake	Tshabalala	Calibration, part 1	Koch
	Mrs.	Imogen Julitta	Carew	Calibration, part 2	Koch
	Mrs.	Merylinda	Conradie	Calibration, part 3	Koch
10:00 - 10:30	break				
10:30 - 12:00	Mr.	Ronald Gaelekolwe	Samaxa	Calibration, part 4	Koch
	Mrs.	Rashida	Nanhuck	Validation, part 1	Koch
	Mr.	Chundunsing	Baichoo	Validation, part 2	Koch
12:00 - 13:00	break				
13:00 - 14:30	Mr.	David Kipngetich	Koech	Control charts, part 1	Baumeister
	Mr.	Antoine	Mukunzi	Control charts, part 2	Baumeister
14:30 - 15:00	break				
15:00 - 16:30	Mr.	John Paul	Mandi	Control charts, part 1	Baumeister
	Mr.	MacPharllen	Kamwachale	Control charts, part 2	Baumeister

Friday, 13 th August					
	presenter			topic	trainer
08:30 - 10:00	Mr.	Pascal	Kayiranga	Measurement uncertainty 1	Koch
	Mr.	Isaac	Chirwa	Measurement uncertainty 2	Koch
10:00 - 10:30	break				
10:30 - 12:00	Mr.	Lesala	Ntsoeu	Measurement uncertainty 3	Koch
	Mr.	Teddy	Ditsabatho	Measurement uncertainty 4	Koch
12:00 - 13:00	break				
13:00 - 14:30	Ms.	Vuyani Monyake	Tshabalala	Interlaboratory tests 1	Baumeister
	Mrs.	Merylinda	Conradie	Interlaboratory tests 2	Baumeister
14:30 - 15:00	break				
15:00 - 16:30	Mrs.	Imogen Julitta	Carew	Interlaboratory tests 1	Baumeister
	Mr.	Ronald Gaelekolwe	Samaxa	Interlaboratory tests 2	Baumeister

Schedule for the technical training – group 2

Wednesday, 11 th August					
	presenter			topic	trainer
08:30 - 10:00	Mrs.	Kezia	Mbwambo	Metrology and traceability	Baumeister
	Mr.	Jean Paul	Munongo	Certified reference materials	Baumeister
10:00 - 10:30	break				
10:30 - 12:00	Mrs.	Jacqueline	Kwesiga	Metrology and traceability	Baumeister
	Mr.	Cliff	Bara	Certified reference materials	Baumeister
12:00 - 13:00	break				
13:00 - 14:30	Mr.	Meshack Bhukwana	Dlamini	Glossary, part 1	Koch
	Mr.	Andrew	Chipongo	Glossary, part 2	Koch
	Mrs.	Charys	Ugullum	Basic Statistics, part 1	Koch
14:30 - 15:00	break				
15:00 - 16:30	Mr.	Aziz	Mukota Kimera	Basic Statistics, part 1	Koch
	Mrs.	Margaret	Mazhamo	Basic Statistics, part 2	Koch
	Mrs.	Agnes Njau	Mneney	Basic Statistics, part 2	Koch

Thursday, 12 th August					
	presenter			topic	trainer
08:30 - 10:00	Mr.	Xavier	Garwe	Control charts, part 1	Baumeister
	Mr.	Peter	Maringa	Control charts, part 2	Baumeister
10:00 - 10:30	break				
10:30 - 12:00	Mr.	Thembinkosi	Kunene	Control charts, part 1	Baumeister
	Mr.	Vivian	Radegonde	Control charts, part 2	Baumeister
12:00 - 13:00	break				
13:00 - 14:30	Mrs.	Kezia	Mbwambo	Calibration, part 1	Koch
	Mrs.	Jacqueline	Kwesiga	Calibration, part 2	Koch
	Mr.	Jean Paul	Munongo	Calibration, part 3	Koch
14:30 - 15:00	break				
15:00 - 16:30	Mr.	Cliff	Bara	Calibration, part 4	Koch
	Mr.	Meshack Bhukwana	Dlamini	Validation, part 1	Koch
	Mr.	Andrew	Chipongo	Validation, part 2	Koch

Friday, 13 th August					
	presenter			topic	trainer
08:30 - 10:00	Mrs.	Charys	Ugullum	Interlaboratory tests 1	Baumeister
	Mrs.	Margaret	Mazhamo	Interlaboratory tests 2	Baumeister
10:00 - 10:30	break				
10:30 - 12:00	Mr.	Aziz	Mukota Kimera	Interlaboratory tests 1	Baumeister
	Mrs.	Agnes Njau	Mneney	Interlaboratory tests 2	Baumeister
12:00 - 13:00	break				
13:00 - 14:30	Mr.	Xavier	Garwe	Measurement uncertainty 1	Koch
	Mr.	Peter	Maringa	Measurement uncertainty 2	Koch
14:30 - 15:00	break				
15:00 - 16:30	Mr.	Vivian	Radegonde	Measurement uncertainty 3	Koch
	Mr.	Thembinkosi	Kunene	Measurement uncertainty 4	Koch

Common activities and evaluation

Each day of the technical training was finalized by a wrap-up meeting to discuss general questions mainly regarding the execution of the workshop programme.

Every evening there was a possibility to contact the trainers with regard to questions on the presentations to be given by the participants.

At the last day the training was evaluated and possibilities for the future national workshops were discussed. All participants were asked to fill in an evaluation questionnaire (see annex 2).

Impressions from the participants' presentations

Although the material to be presented was sent to the participants quite early, not all of them were sufficiently prepared. So some of the participants gave very impressive presentations while others had many difficulties with the content and with the new situation to be in front of an audience. Nevertheless we are confident, that finally many of the participants would be able now to conduct national workshops in their country. Some of them definitely will need help for that.

Outlook and suggestions

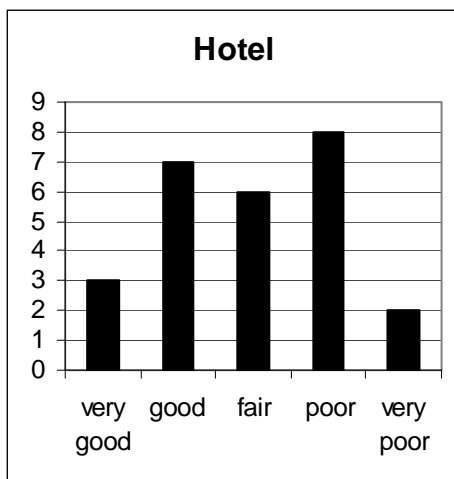
In this training of trainers the aim was to build capacities in the region to multiply the information and knowledge about quality assurance procedures in the analytical laboratories. The information needs to reach all laboratories in the countries. Due to limited capacities in the training course for most of the countries only 2 people could be trained. In our mind it would be very helpful for the networking in the region to encourage participants from different countries in the course to help each other with conducting these workshops instead of sending resource persons from outside the region.

Coordination will be necessary to facilitate such cooperation. SADCWaterLab is the obviously best suitable organisation for that. In the SADCWaterLab meeting in the Seychelles a working group on "survey on needs" was established. The coordination of QA workshops with trainers from different countries of the region could be a new task for this working group. This should be discussed during the next General Assembly of SADWaterLab.

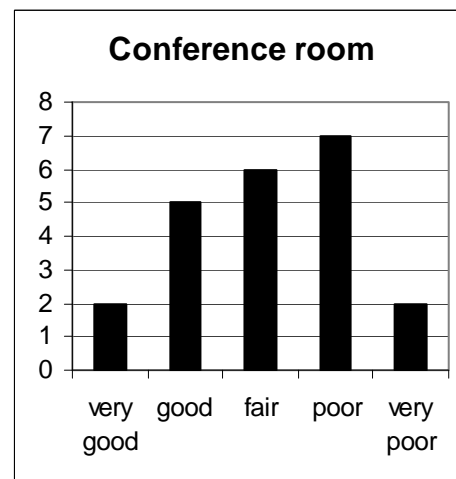
Results from the evaluation questionnaire

Hotel and accomodation

How do you judge the hotel (accomodation, food):



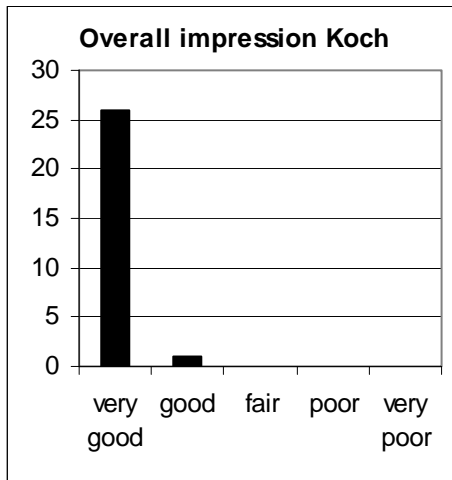
How do you judge the conference room:



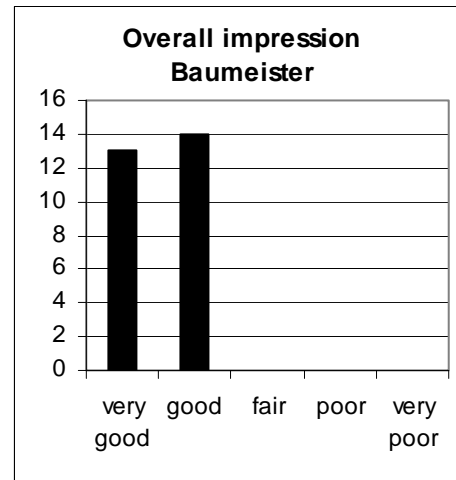
The trainers

How do you judge the overall impression on the trainers?

Michael Koch

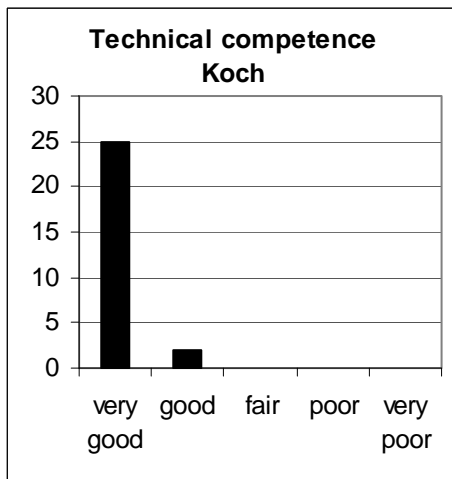


Frank Baumeister

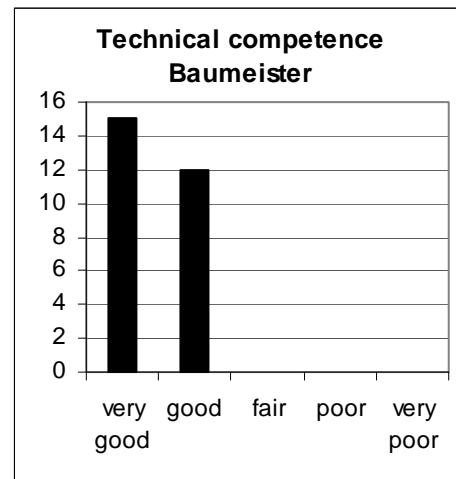


How do you judge the technical competence of the trainers?

Michael Koch

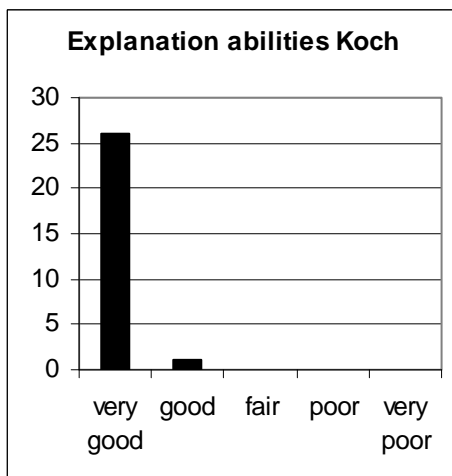


Frank Baumeister

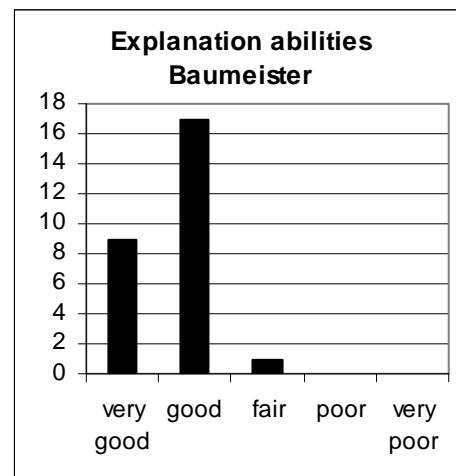


How do you judge the abilities of the trainers to explain the technical content?

Michael Koch

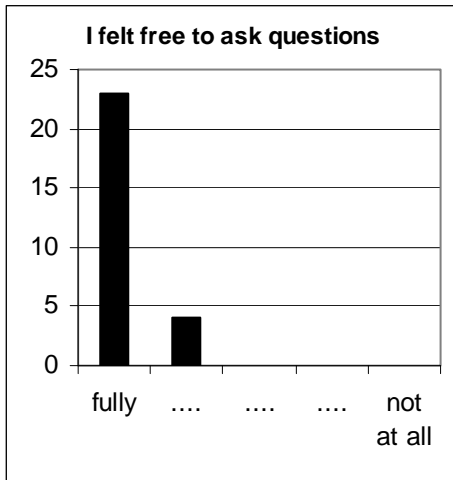


Frank Baumeister

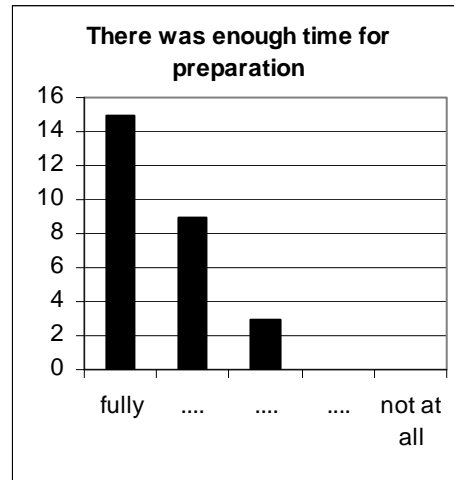


To what degree do you agree with the following statements?

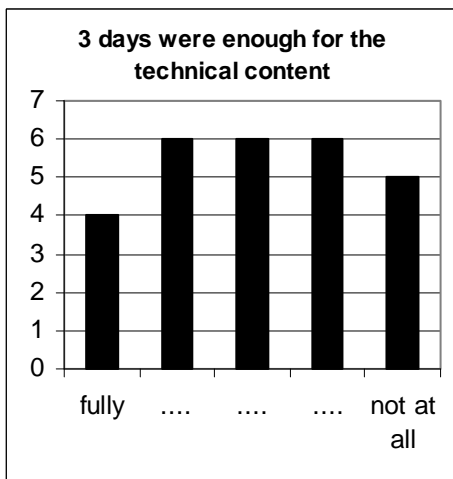
I felt free to ask questions



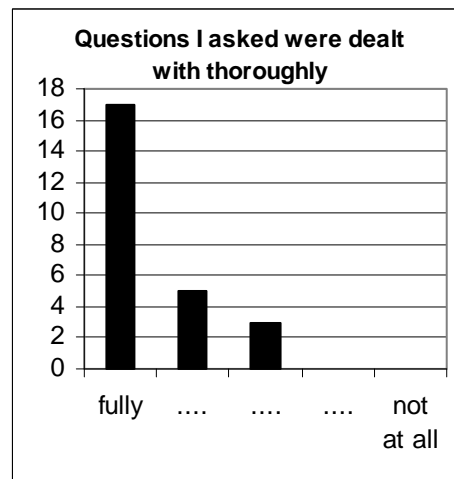
There was enough time for preparation



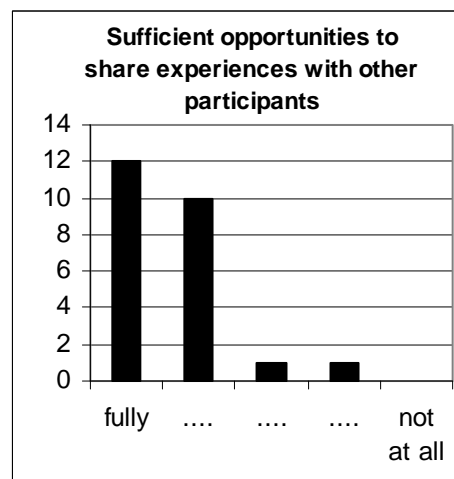
3 days were enough for the technical content



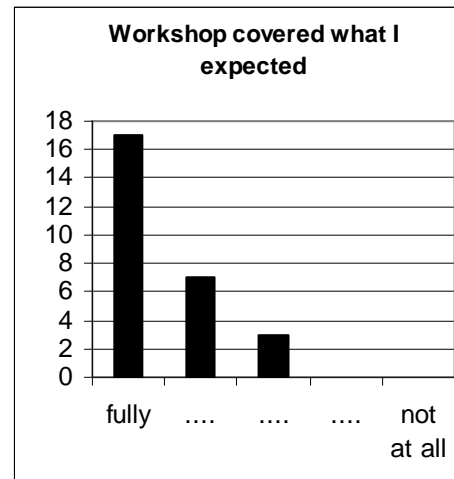
The questions I asked were dealt with thoroughly



I had have sufficient opportunity to share experiences with other participants



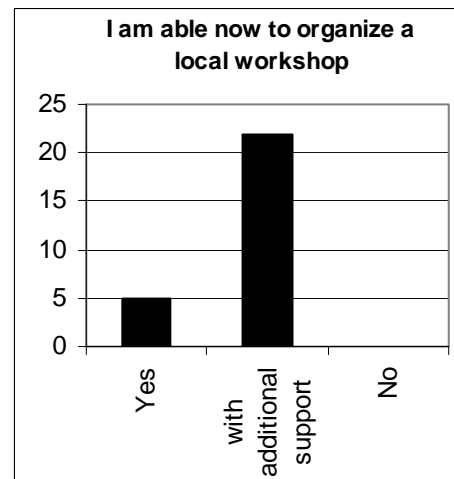
The workshop covered what I expected to be covered before the workshop started



Are you, with the knowledge gained in this training, confident to train other people in your country?



Do you think you are able now to organize and conduct a local workshop on QA in Analytical Chemistry in your country?



What benefits did you draw from the workshop?

- Training skills; technical knowledge of Quality Assurance in Laboratories increased, thus capacity enhanced for training others.
- Confidence; better knowledge and understanding of the topic; network with other participants: a mentor, especially Michael Koch, is new here, anytime I will find a problem, I feel I can go to him, via mail, for clarifications, he is always ready to share; the material given is of invaluable importance.
- The soft skills training was an eye opener to me, we really needed it; the technical training was also very interesting, informative and knowledge increasing; Overall it was a very good ToT, Baichoo.
- Able to understand basic statistics and their application in laboratories; able to estimate the uncertainty budget; skill to train others on these topics.
- Ability to stand in front of an audience and make a presentation; ability to motivate participation of participants; use of visual aids in presentations; stimulating interest; shared experiences with other participants; technical information on QA in Analytical Chemistry.

- Learned new skills to be a trainer; obtained updated CD for control charts; there were new materials / new approach to estimation of uncertainties; networking with resource persons and fellow participants.
- I have gained confidence to stand before the audience and present the subject topic; I have gained to create the objective of the subject; I have gained to read graphs interpreted.
- Gained knowledge on the topics discussed and feel more confident sharing the information.
- I have added skills in statistical applications, validation of methods and presentation skills.
- Interactions with experts from other countries (Germany). Interaction with peers from other African countries, who shared their experiences and enhanced the learning process. I gained in-depth knowledge beyond just the concepts, but mostly on application of QA within water testing laboratory.
- Soft skills to present different topics to adult. Knowledge, technical information to take home for the National workshops. Shared knowledge experience with others.
- Soft skills; technical content; regional interactions with colleagues.
- From the workshop I found more empowered on the analytical knowledge, organization of presentations and presentations skills as well as confidence on training others.
- Good opportunity to apply the slides properly and make use of the consultants for assistance. I also think there was an improvement in my presentation skills between the first day and last day. It gave me an opportunity to discover how to approach the slides in order to present it the best way.
- I was able to refresh and even learn to a greater extent many chemistry and statistical concepts. But this it should be noted is just the beginning.
- Now I can do method validation and estimate measurement uncertainties for the methods which I intend to apply for accreditation. I can now construct control charts and use them in my lab to assure the quality of results. I can train others on the things I have learned.
- It has provided me with an sight into estimation of measurement uncertainties. Equipped me with tools to carry out statistical/graphical analysis of quality control in the lab. Exposed me to various ways of carrying out method validation. The tools of basic statistics are an important aspect of usage in chemistry lab and I have gained this knowledge.
- Gained skills in training adults and qualities of a trainer. Also how a training prepares and conducts training. Applications on chemistry aspects were thoroughly addressed as well as quality management system such as validation, uncertainty of measurement and calibration.
- Soft skills training proved to be very useful, if I want to train adults. The technical contents of the course brought more clarity on several topics.
- I appreciated better the importance of measurement uncertainty and various ways of estimating it.
- Better understand on the Quality Assurance in Analytical Chemistry, which I will use to train other participants in the local trainings.
- I have been able to learn the required skills needed to prepare and run a national workshop, with regards to Quality Assurance in Analytical Chemistry. I have also been able to further my knowledge in specific topics needed for the national workshop.

- Gain of knowledge on top of what I already knew. My training ability will improve tremendously to my personal advantage and my country as a nation. Application of QM will improve my QC approach to understanding aspects in QC.
- I got an opportunity to have the questions and issues I didn't understand explained to me. I got an opportunity to share with others my experiences and theirs. I was also able to share experiences with others from laboratories that are applying what was being taught.
- Presentation skills and confidence was boosted dramatically during the first 2 days. I am now able to impart in my own lab, in terms of staff which plays also a vital role when we have to start the accreditation process. Overall it was very beneficial.

What could have been made better?

- Explaining of control charts and basic statistics.
- Period for more practical examples and illustrations of estimation of measurement uncertainties and statistics should have been longer programmed.
- Knowledge and understanding of QA. Good base to give me confidence in the application of same. Networking with other chemists.
- The logistics (room, food, conference facilities): this has disturbed the better conduct of this workshop; SADC MET facilitator tries his best to make us comfortable, but he also could not do much since decision was at PTB level.
- The logistics part, e.g. location, availability of computers and other facilities to perform group works.
- Venue of the training was not good and the duration, because the time for presentation was too small to all trainees improve their presentation skills.
- Accommodation and food; per diem paid to participants rather than forcing them to full board.
- Choice of venue for the workshop not appropriate.
- The conference room was small; flies were quite disturbing.
- Accommodation, conference room and time could also be improved.
- Practical situation in laboratory could have an added advantage to identify uncertainties. Pick a method and try to identify uncertainties.
- The hotel accommodation facilities could have been improved. My room had ticks/bugs which greatly disturbed my sleep.
- Accommodation and conference rooms, 5 days for technical content.
- Logistics.
- The accommodation.
- Good knowledge on the presentation skills.
- The hotel is certainly not one of the best – but it was ok. I could live with it!
- The workshop was most definitely in an Analytical Chemistry context. It would be excellent, if we had something similar tailor made also to microbiologists, instead of 'lumping' microbiologists in the same category of Analytical chemists. This is because they have different specialties.
- The space in the conference room (bar) was too small. So if we had a bigger room it would have been better.
- Kindly plan and organize a more specific workshop for microbiology for the microbiologists in method validation, measurement uncertainties and quality

control, in order to fill in the knowledge gaps for those who attended this workshop.

- The same course on Training of trainers should be extended to microbiological analysis.
- Hotel accommodation. Funding / per diem from organizers. Transit accommodation and organizations.
- More knowledge on basic statistics.
- Time should be extended for some of us, who are not knowledge in the topic covered.
- The length of the technical part of the training was a bit short.
- Michael Koch could have gone through the whole content as a subject and let participants present to understand and test their level of understanding.
- There was need for more time as the topics covered are not very easy to apply in Analytical Chemistry. There was need for more questions and answers and explanations.
- More examples should be applied/accompany the content, especially with measurement uncertainty.

Stuttgart, 20.9.2010

Dr.-Ing. Michael Koch

Dr.-Ing. Frank Baumeister

Annex 1

List of participants "Training of Trainers" Livingstone, Zambia, 9 - 13 August 2010

Country	Mr/Mrs	First name	Surname	Organisation	Address	City	E-mail1	E-mail2	E-mail3
Botswana	Mr.	Teddy	Ditsabatho	Water Utilities Corporation	Private Bag 002	Gaborone	TDitsabatho@wuc.bw	mbalebetse@wuc.bw	
Botswana	Mr.	Ronald Gaelekolwe	Samaxa	Water Utilities Corporation	Private Bag 002	Gaborone	rsamaxa@wuc.bw		
Kenya	Mr.	John Paul	Mandi	Kenya Bureau of Standards	P.O. Box 99376-60100	Mombasa	mandij@kebs.org		
Kenya	Mr.	David Kipngetich	Koech	Kenya Bureau of Standards	P.O.Box 54974-00200	Nairobi	koechd@yahoo.com	koechd@kebs.org	
Lesotho	Ms.	Vuyani Monyake	Tshabalala	Department of Water Affairs	PO. BOX 456	Maseru	tshabalala@dwa.gov.ls	vuyanitsha@gmail.com	
Lesotho	Mr.	Lesala	Ntsoeu	Department of Standards and Quality As	P.O. Box 8643	Khubetsoana Maseru 100	Intsoeu@ananzi.co.za	Intsoeu@yahoo.com	lessqa@leo.co.ls
Malawi	Mr.	Isaac	Chirwa	Malawi Bureau of Standards	P.O. Box 946	Blantyre	isaacchirwa@mbsmw.org		
Malawi	Mr.	MacPharllen	Kamwachale	University of Malawi, The Polytech	PB 303	Chichiri	mkamwachale@poly.ac.mw		
Mauritius	Mrs.	Rashida	Nanhuck	Mauritius Standards Bureau	Villa Road	Moka	manhuck@msb.intnet.mu	manhuck@gmail.com	
Mauritius	Mr.	Chundensing	Baichoo	Mauritius Standards Bureau	Villa Road	Moka	cbaichoo@msb.intnet.mu		
Namibia	Mrs.	Merylinda	Conradie	Namwater	PO Box 2522	Windhuk	conradiem@namwater.com.na	conradie@iway.na	
Namibia	Mrs.	Imogen Julitta	Carew	City of Windhuk	Ausspannplatz	Windhuk	ijv@windhoekcc.org.na	imogen_carew@yahoo.com	
Rwanda	Mr.	Pascal	Kayiranga	Rwanda Bureau of Standards	P.O. Box 7099	Kigali	kayirangap@yahoo.ca		
Rwanda	Mr.	Antoine	Mukunzi	Rwanda Bureau of Standards	P.O. Box 7099	Kigali	mukanto7@yahoo.fr	mukunzi.antoine@rbs.org.rw	
Seychelles	Mr.	Vivian	Radegonde	Seychelles Bureau of Standards	P O Box 953	Mahé	vivianradegonde@hotmail.com	sbsorg@seychelles.net	
Seychelles	Mr.	Cliff	Bara	Seychelles Bureau of Standards	Au Cap	Mahé	c.ixoye@yahoo.com	bsorg@seychelles.net	
Swaziland	Mr.	Meshack Bhukwana	Dlamini	Water Resources Lab	P.O. Box 2681	Mbabane	meshbdlamini@yahoo.com	emswane@yahoo.com	
Swaziland	Mr.	Thembinkosi	Kunene	Municipal Council of Mbabane	P.O. Box 1	Mbabane	thembinkosi@mbacity.org.sz	tkmkunene@gmail.com	
Tanzania	Mrs.	Agnes Njau	Mneney	Tanzania Bureau of Standards	P.O. Box 75472	Dar es Salaam	agymneney@yahoo.co.uk		
Tanzania	Mrs.	Kezia	Mbwambo	Tanzania Bureau of Standards	P.O. Box 1339	Dar es Salaam	kmbwambo@yahoo.co.uk		
Tanzania	Mrs.	Charys	Ugullum	Tanzania Food and Drugs Authority	P O Box 77150	Dar es Salaam	cha_ug@yahoo.com	charys.ugullum@tfda.or.tz	
Uganda	Mrs.	Jacqueline	Kwesiga	Uganda National Bureau of Standards	P.O. Box 6329	Kampala	Jkyokunda@yahoo.com	jacqueline.kwesiga@unbs.go.ug	
Uganda	Mr.	Aziz	Mukota Kimera	Uganda National Bureau of Standards	P.O. Box 6329	Kampala	aziz.mukota@unbs.go.ug	azizmukota77@yahoo.com	
Zimbabwe	Mr.	Peter	Maringa	Standards Association of Zimbabwe	P.O. Box 661336	Harare	sazlabs@mweb.co.zw		
Zimbabwe	Mr.	Xavier	Garwe	Zimlab		Harare	zimlab@africaonline.co.zw		
Zambia	Mr.	Andrew	Chipongo	Zambia Bureau of Standards	P.O. Box 50259	Lusaka	andrewc@zabs.org.zm		
Zambia	Mrs.	Margaret	Mazhamo	Food and Drugs Control Laboratory	P.O. Box 310138	Lusaka	mazhamoms@yahoo.com		
DRC	Mr.	Jean Paul	Munongo	OCC-Matadi			jpmunongo@yahoo.fr	jack_kituba@yahoo.fr	



Evaluation Questionnaire – Training of Trainers QA in Analytical Chemistry Part

For the evaluation of the success of this training, please answer the following questions:

How do you judge:	Very good	good	fair	poor	very poor
The hotel (accommodation, food)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The conference room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please indicate in which room you have been: <input type="checkbox"/> "Conference room" <input type="checkbox"/> "Bar"					

How do you judge:	Very good	good	fair	poor	very poor
Overall impression on the trainers					
Michael Koch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frank Baumeister	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The technical competence of the trainers					
Michael Koch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frank Baumeister	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The abilities of the trainers to <u>explain</u> the technical content					
Michael Koch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frank Baumeister	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To what degree do you agree with the following statements

	Fully	not at all
I felt free to ask questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There was enough time for preparation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 days were enough for the technical content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The questions I asked were dealt with thoroughly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had have sufficient opportunity to share experiences with other participants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The workshop covered what I expected to be covered before the workshop started	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are you, with the knowledge gained in this training, confident to train other people in your country?

Yes, I am confident I am still not fully confident No, I am not confident at all

Do you think you are able now to organize and conduct a local workshop on QA in Analytical Chemistry in your country?

Yes Yes, but I need additional support No, it is too difficult

please turn over

What benefits did you draw from the workshop?

What could have been made better?

Annex 3

List of contents of Guideline-CD

- Accreditation
 - CITAC_EURACHEM Guide to Quality in Analytical Chemistry 2002.pdf
 - EA-4-09rev01Accreditation for Sensory Testing Laboratories.pdf
 - EA-4-10rev02Accreditation for Microbiological Laboratories.pdf
 - EA-4-15rev00Accreditation for Bodies Performing non-Destructive Testing.pdf
 - EURACHEM_EA Accreditation for Microbiological Laboratories 2002.pdf
 - Ilac-g10 Harmonised Procedures for Surveillance & Reassessment of Accredited Laboratories.pdf
 - Ilac-g18 The Scope of Accreditation and Consideration of Methods and Criteria for the Assessment.pdf
 - Ilac-g19 Guidelines for Forensic Science Laboratories.pdf
- ControlCharts
 - Nordtest_tec569.pdf
- General
 - Harmonised Guidelines for the Use of Recovery Information in Analytical Measurements 1998.pdf
 - OrangeBook.pdf
 - Quality Assurance for Research and Development and Non-routine Analysis.pdf
 - Technical_Report_Guidance_for_Management_Computers_October_2006.pdf
 - VIM_JCGM200_2008_E.pdf
- Measurement Uncertainty
 - A2LA_est_mu_testing.pdf
 - at01_VAM_uncertainty.pdf
 - EA-4-16rev00EA Guidelines on the Expression of Uncertainty in Quantitative Testing.pdf
 - EURACHEM_Measurement_Uncertainty_arising_from_sampling_2007.pdf
 - GUM_English_JCGM_100_2008_E.pdf
 - ILAC_G8_03_Guidelines_on_the_reporting_of_Compliance_with_Specification_2009.pdf
 - Ilac-g17 Introducing the Concept of Uncertainty of Measurement in Testing.pdf
 - J4_2003.pdf
 - nordtest_tec537_2nd_ed.pdf
 - Quantifying Uncertainty in Analytical Measurement, 2nd Edition 2000.pdf
 - Technical_Report_Measurement_Uncertainty_2007.pdf
 - Use of uncertainty information in compliance assessment_2007_v1.pdf
- Proficiency Testing
 - EA-3-04-rev01Use of Proficiency Testing as a Tool for Accreditation in Testing.pdf
 - ILAC_G13_08_2007.pdf
 - Ilac-g22 Use of Proficiency Testing as a Tool for Accreditation in Testing.pdf
 - International harmonized protocol_2005.pdf
 - IUPAC PT for limited number of participants.pdf

- Selection, Use and Interpretation of Proficiency Testing (PT) Schemes by Laboratories 2000.pdf
- Reference Materials
 - EA-4-14rev00The Selection and Use of Reference Materials.pdf
 - ILAC_G9_2005_guidelines_for_the_selection_and_use_of_reference_material.pdf
 - Ilac-g12 Guidelines for the Requirements for the Competence of Reference Materials Producers.pdf
 - The Selection and use of Reference Materials 2002.pdf
- Traceability
 - EA-4-07 Traceability of Measuring and Test Equipment to National Standards.pdf
 - EURACHEM-CITAC-Traceability in Chemical Measurement 2003.pdf
- Validation
 - The Fitness for Purpose of Analytical Methods 1998.pdf