



## **Report of the INTREC Workshop on Quantitative and Qualitative Research Methods for Addressing Inequities and Social Determinants of Health (SDH) in Africa**

*Accra Ghana: 12<sup>th</sup> to 23<sup>rd</sup> May 2014*

The INTREC regional mixed methods workshop title *Quantitative and Qualitative Research Methods for Addressing Inequities and Social Determinants of Health (SDH)* for HDSSs in Africa was successfully held at the Ampomaah Tourist Hotel, East Legon from 13<sup>th</sup> to 23<sup>rd</sup> May 2014. The workshop was composed of two separate but closely related courses (Qualitative and Quantitative). The workshop style consisted of lectures, seminar as well as group and individual work/assignments. Strictly restricted to the HDSS nominees who have completed the block 1 (online course) program, the workshop was effectively attended by 15 participants (of the 19 expected) from 11 INDEPTH Member HDSSs in five countries (Ethiopia, Ghana, Kenya, South Africa and Tanzania).

The first half of the workshop (13-17 May) was devoted to the qualitative component and this was mainly facilitated by Dr Joke Haafkens of the University of Amsterdam, the Netherlands and Dr Klas-Goran Sahlen of the University of Umea, Sweden while Drs Heribert Ramroth and Nicholas Henschke facilitated the quantitative component that ran from 19-23 May 2014. The workshop went on very well and all the trainees were totally pleased with the training. However, one major problem that cropped up was the selection of candidates for the third block of the training programme (data analysis workshop at Harvard). This problem is now referred to as "having interested unselected trainees" was due to the final selection process adopted.

### **Objectives**

This mixed methods regional workshop is the second educational block that provides in-depth training on quantitative and qualitative approaches to studying the SDH. This two-week workshop aimed to demonstrate some key techniques in quantitative and qualitative methods for research on SDH. More specifically, the objectives include to:

- Ensure a better understanding and critically evaluation of the content of scientific articles on SDH
- Provide experience in the process of analyzing data on SDH
- Enhance ability to prepare a writing plan for quantitative analysis (related to the research question from Block 1)

- Familiarize with the basic requirements of a qualitative study design such as formulating a research question and planning for sampling and recruitment.
- Provide basic skills in different data collection methods (in-depth interviews, focus groups, participant observation) in qualitative research
- Enhance understanding on the basics of qualitative data analysis and reporting of qualitative studies
- To help develop a plan (design and methodology) for a qualitative study

## Participation

In keeping with the sequential nature of the INTREC educational program developed, this workshop was strictly reserved for the INDEPTH member HDSS nominees who had successfully completed the block 1 (online course). To facilitate selection of the trainees (given limited resources), an open call was made on the INDEPTH website (Appendix A) for interested participants to confirm interest by registering for the workshop. In all, 15 of the 19 expected effectively registered and were funded to the workshop. These were representatives from 11 INDEPTH members HDSS namely: Butajira, Gilgel Gibe and Kilite Awlaelo (Ethiopia), Dodowa (Ghana), Kisumu, Kombewa and Nairobi (Kenya), Ifakara/Rufiji and Magu (Tanzania), Agincourt (South Africa). The list of participants is provided in Appendix B.



*Group photo of participants with qualitative facilitators*

The trainees came from diverse disciplines including: data managers, social scientists, clinical trials managers, research officers/fellows, Paediatricians etc. As the title suggests, the workshop *per se* was composed of two separate but related closely courses (Qualitative and Quantitative) organized as a combination of lectures, seminar, group/individual work or assignments and field visit.

### **The Qualitative Workshop**

The first five-day (13-17 May) course offered an introduction to qualitative research methods for research on social determinants of health (SDH) for INDEPTH scholars. Essentially, this equipped the trainees with an understanding of how qualitative research approaches may be useful in projects that focus SDH and provided basic skills that needed to critically design and carry out their own qualitative research projects in the field of SDH. The topics covered include the following: the role of qualitative research in generating evidence on SDH; designing a qualitative study (formulating qualitative research questions; sampling and recruitment); planning and conducting in-depth interviews, focus groups, participant observation; ethical considerations; basics of qualitative data analysis and reporting, etc. The detail workshop schedule is provided in Appendix C.

One key aspect of this training was a practical field observation exercise that was conducted on the fourth day. Although, initial suggestion were for a field visit to one of the closest INDEPTH member center (Dodowa was visited during the stakeholders' conference) where the trainees could practice observation skills, financial implications precluded this option. So we settled for nearby market place that offered ample opportunity to observe some relevant social determinants of health such as availability of healthier and unhealthier foods, waste and/or water management, what aging people do/don't do; traffic safety (helmets); physical exercise etc . In effect, the trainees were taken to the Madina Market which turned out to be a perfect venue for this exercise. Divided into groups, one of the groups observed *Waste Disposal Practices at the Madina Market*.

### **The Quantitative Component**

The second half of the workshop was devoted to providing the training some basic knowledge of the relevant statistical terminology to ensure a better understanding and critically evaluation of the content of scientific articles on SDH, as well as providing some experience in the process of analyzing data on SDH and an enhanced ability to prepare a writing plan for quantitative analysis related to the research questions from Block 1. Consequently, the topics covered include measurement, study design and sampling; basic statistics and descriptive analyses; correlation, regression, longitudinal analysis, logistic regression and multilevel models, presentation and interpretation of results.

### **Main accomplishment: Final note**

The workshop was very successful as it was highly appreciated by all the 15 participants in attendance. The trainees all exhibited a lot of enthusiasm and commitment during the workshop. Indeed they were

extremely motivated to initiate relevant SDH-related research in their respective HDSSs. On the other hand, the lead facilitators were equally impressed with the high level participation and active involvement of all the trainees during the workshop. Prior to the workshop, the trainees had research proposals (based on their research questions from the online course) in preparation for the third block of the training programme, the data analysis workshop at Harvard. However, a good number of these proposals (and the processes involved) were not really adequately thought out due to both time constraints and the limited knowledge.

It is worth noting that by the end of the workshop, most of (if not all) these proposals and relevant processes required to conduct the research were not only carefully thought out and explicitly outlined but a good number of these research proposals had been changed completely. However, as hinted earlier, there were real concerns related to the selection process for those retained for next block of the training (a data analysis workshop built for Harvard). Candidates for this subsequent stage had already been selected (based on the initial submission) and announced. Of the 15 trainees, eight had been selected and seven who were not selected were very disappointed.

The selection process adopted due to limited resources resulted in a situation where we now have a good number of committed and capable researchers who are not able to continue with their good projects through no fault of their own: a situation which is now referred to as having *unselected but interested trainees*. In view of the lack of financial resources for us to convene a separate data analysis workshop for this group, we quickly agreed on collectively supporting them beyond this workshop so that they can continue with their proposed projects on SDH. Indeed, the offer to continue supporting these candidates through one-on-one mentorship on a more or less private basis as they develop their papers really helped to ensure that the workshop was concluded on a generally positive note.

## Appendix B: Workshop Announcement



<b>Workshops Title:</b>	<b>Workshop on Quantitative and Qualitative Research Methods for Addressing Inequities and Social Determinants of Health (SDH) in Africa</b>
<b>Dates:</b> a) Arrival: b) Workshop: c) Departure:	12 <sup>th</sup> May 2014 13 <sup>th</sup> -23 <sup>rd</sup> May 2014 23 <sup>rd</sup> /24 <sup>th</sup> May 2014
<b>Venue:</b> a) Hotel: b) City/Country:	Ampomaah Hotel Ltd East Legon, Accra Ghana
<b>Facilitators</b>	<ul style="list-style-type: none"> <li>• Include faculty from several partners including UMEA University, Sweden, Heidelberg University, Germany, University of Amsterdam, The Netherlands, etc.</li> </ul>
<b>Background</b>	<p>The INTREC (INDEPTH Training and Research Centers of Excellence) is a new professional development program designed for INDEPTH scientists interested in <i>Social Determinants of Health</i> (SDH). This program is a result of collaboration between several international partners, including University of Amsterdam (The Netherlands); Heidelberg University (Germany); Gadjah Mada University (Indonesia); Harvard University (USA), Umea University (Sweden) and INDEPTH Network. With joint forces and expertise, the partners have created a training program for young INDEPTH scientists on SDH that consist of five educational blocks.</p>
<b>Objectives:</b>	<p>This mixed methods regional workshop is the second educational block that provides in-depth training on quantitative and qualitative approaches to studying the SDH. This two-week course aims to demonstrate some main techniques in quantitative and qualitative methods for research on SDH. More specifically, the objectives include to:</p> <ul style="list-style-type: none"> <li>• Ensure a better understanding and critically evaluation of the content of scientific articles on SDH</li> <li>• Provide experience in the process of analyzing data on SDH</li> <li>• Enhance ability to prepare a writing plan for quantitative analysis (related to the research question from Block 1)</li> <li>• Familiarize with the basic requirements of a qualitative study design such as formulating a research question and planning for sampling and recruitment.</li> <li>• Provide basic skills in different data collection methods (in-depth interviews, focus groups, participant observation) in qualitative research</li> <li>• Enhance understanding on the basics of qualitative data analysis and reporting of qualitative studies</li> <li>• To help develop a plan (design and methodology) for a qualitative study</li> </ul>

<b>Expected Outcomes:</b>	<p>Upon successful completion of the workshops the students are expected to:</p> <ul style="list-style-type: none"> <li>• Understand and critically evaluate the content of SDH scientific articles;</li> <li>• Acquired experience in the process of analyzing data on SDH;</li> <li>• Be able to prepare in writing a plan for own quantitative analysis (related to a personal research question from Block 1);</li> <li>• Understand the role of qualitative studies in SDH research;</li> <li>• Be familiar with the basic requirements of a qualitative study design.</li> <li>• Have basic skills in different data collection methods (in-depth interviews, FGD, participant observation) in qualitative research;</li> <li>• Understand the basics of qualitative data analysis and reporting of such studies;</li> <li>• Be able to develop a plan (the design and methodology) for a qualitative study</li> </ul>
<b>Proposed style of Workshop</b>	The course will compose of two separate but related closely workshops (Qualitative and Quantitative). The workshop style will consist of lectures, seminar as well as group and/or individual work or assignments.
<b>Expected Participants:</b>	This workshop is strictly restricted to the HDSS nominees who have completed the block 1 (online course) program. Depending on available resources, the Secretariat will fund a max of 19 participants from 13 HDSSs.
<b>Host:</b>	<b>INDEPTH Secretariat in Accra</b>
<b>Key Requirements and deadline:</b>	<p>a) Participants who have successfully completed block 1 (online training) will be selected for funding once registered. Those interested <b>MUST</b> register online by <b>20<sup>th</sup> April 2014</b> at the latest. This will allow for travel arrangements to be made.</p> <p>b) All participants are required to bring along laptops to the workshop.</p>
<b>Travel advisory:</b>	<p>a) We will issue out invitation letters to confirmed participants to apply for visas, where applicable. Please inform the Secretariat if you require any assistance.</p> <p>b) For overnight stays, please see travel support below.</p>
<b>Travel Support:</b>	<p>a) The Secretariat will cover the cost of a return economy class ticket from home HDSS location/country to the city where the workshop will be held.</p> <p>b) Reasonably priced <b>non-refundable</b> tickets will be purchased. When you receive a booking you must check to ensure that everything is fine. Once confirmed by you, <b>any changes that will lead to extra cost must be covered by the member centre.</b></p> <p>c) <b>Travel insurance cannot</b> be covered by INDEPTH</p> <p>d) In-country travel from centers to the airport will be covered. Please inform the Secretariat of the cost <b>in advance</b> for approval. Evidence of payment for the travel must be produced.</p> <p>e) Should overnight stay both in-country and while in transit be necessary, please inform the Secretariat before starting the journey so that adequate preparation can be made for reimbursements. Original receipts will be requested by the Secretariat.</p>

	f) The Secretariat will usually cover accommodation for the workshop days plus half boarding. A modest per diem will be paid for dinner and incidentals. <b>All other services at the hotel</b> (mini bar, telephones, etc) must be paid for directly.
<b>Reimbursements</b>	<p>a) Please bring along to the workshop originals of all expenses incurred for your travel to the workshop.</p> <p>b) To avoid delays, you may scan the receipts and email before starting your journey.</p> <p>c) We prefer to transfer funds to institutions' bank accounts. However, if you have pre-financed the trip privately, we will refund to your personal bank account.</p>
<b>INDEPTH Staff responsible for this workshop</b>	Martin Bangha ( <a href="mailto:martin.bangha@indepth-network.org">martin.bangha@indepth-network.org</a> ), & Beatrice Afari-Yeboah ( <a href="mailto:beatrice.yeboah@indepth-network.org">beatrice.yeboah@indepth-network.org</a> )
<b>Other issues:</b>	Participants may be asked kindly by the Secretariat to bring along information materials from their centers. These may include strategic plans, annual reports, publications and brochures and financial reports on sub-grants.

## Appendix B: List of Participants

No.	<u>firstname</u>	<u>gender</u>	<u>affiliation</u>	<u>city</u>	<u>email</u>
1	David K Obor	M	Kisumu, Kenya	KISUMU	dobor@kemricdc.org
2	Fikiri A. Chisonjela	M	Magu, Tanzania	Mwanza	chisonjelaf@yahoo.com
3	GODFREY ALLAN OTIENO Muga	M	Kombewa, Kenya	Kisumu	gaotieno@gmail.com
4	Semaw F Abera	M	Kilite Awlaelo, Ethiopia	Mekelle	semawfer@yahoo.com
5	Muluken G Turago	M	Butajira, Ethiopia	Addis Ababa	muluken.gizaw@yahoo.com
6	Janet N Oyieko	F	Kombewa, Kenya	Kisumu	janet.oyieko@usamru-k.org
7	Angela G. Kimweri	F	Ifakara, Tanzania	Dar es Salaam	akimweri@ihi.or.tz
8	Ryan Wagner	M	Agincourt, South Africa	Acornhoek	ryan.wagner@wits.ac.za
9	Chodziwadziwa W. Kabudula	M	Agincourt, South Africa	Acornhoek	ckabudula@gmail.com
10	Luke Otieno Tina	M	Kombewa, Kenya	Kisumu	Lucas.Tina@usamru-k.org
11	Sally M Mtenga	F	Ifakara, Tanzania	Dar es Salaam	smtenga@ihi.or.tz
12	Fasil Tessema W	M	Gigel Gibe	Jimma	fasil.tessema@ju.edu.et
13	Richard A Nagai	M	Dodowa, Ghana	Accra	richardafedi@gmail.com
14	Evodius Kuringe	M	Magu, Tanzania	Mwanza	evokur@yahoo.co.uk
15	Patricia Aja Elung'ata	F	Nairobi, Kenya	Nairobi	pelungata@aphrc.org
16	Joke A Haafkens	F	University of Amsterdam	Amsterdam, Netherlands, 1018 WA	j.a.haafkens@uva.nl
17	Klas G Sahlen	M	Umea University,	Umea, Sweden	Ramroth@uni-heidelberg.de
18	Heribert Ranroth	M	University of Heidelberg	Heidelberg, Germany	
19	Nicholas Henschke	M	University of Heidelberg	Heidelberg, Germany	



## Appendix C: Workshop Programme

### A. INTREC Block 2 – Program Workshop on Qualitative Research Methods for Social Determinants of Health, 13-17 May 2014, Accra

Tuesday May 13 08:30	10:00	10:30	12:	13:30	15:00	15:30	17:00
<b>Opening Session</b> -Introduction participants/teachers  -Overview of the workshop and working methods  -Photo session	B R E A K	<b>Lecture 1</b> <i>Qualitative and quantitative research methods overview</i>  <b>Lecture 2</b> <i>The contribution of qualitative approaches to research on SDH</i>	L U N C H	<b>Lecture 3</b> <i>Qualitative research design; Formulating qualitative research questions</i> <ul style="list-style-type: none"> <li>• Sampling</li> <li>• Data collection</li> <li>• Data analysis</li> <li>• Reporting</li> <li>• Trustworthiness</li> </ul>	B R E A K	<b>Individual work</b> <i>Qualitative research design: Assignment</i> <ul style="list-style-type: none"> <li>- Formulate qualitative research questions in relation to SDH work from your own settings; how the sampling should be done and what data collection methods may be used.</li> </ul> <b>Group session</b> <ul style="list-style-type: none"> <li>- Presentations research designs by groups and discussion</li> </ul>	
Wednesday May 14 08:30	10:00	10:30	12:	13:30	15:00	15:30	17:00
<b>Group session</b> <i>Qualitative research design:</i> <ul style="list-style-type: none"> <li>- Continuation presentations research designs</li> </ul> <b>Lecture 4:</b> <i>Practical and ethical considerations in designing qualitative studies</i>	B R E A K	<b>Lecture 5</b> <i>Collecting qualitative data: interviews</i>  <b>Group/individual work</b> Preparing interview guides  Presentation and discussion	L U N C H	<b>Group work</b> <i>Exercise interviewing</i>	B R E A K	<b>Group session</b> Presentation and discussion exercise Interviewing	
Thursday May 15 08:30	10:00	10:30	12:	13:30	15:00	15:30	17:00
<b>Lecture 6</b> <i>Collecting qualitative data through Focus Group Discussions (FDG)</i>  <b>Group work</b> Preparing focus groups and interview guides  -Presentation	B R E A K	<b>Group work</b> <i>Exercises in data collection methods: FGD</i>	L U N C H	<b>Group session</b> Presentation and discussion FGD exercise	B R E A K	<b>Lecture 7</b> <i>Observational methods</i>  <b>Group work</b> Preparing a observation. protocol for tomorrow's field work	

Friday May 16 08:30	10:00	10:30	12:	13:30	15:00	15:30	17:00
<b>Field work</b> Observation	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Field work</b> Observation	<b>L</b> <b>U</b> <b>N</b> <b>C</b> <b>H</b>	<b>Group session</b> Reporting back observation results and discussion	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Lecture 8</b> <i>Analysing qualitative data</i> <b>Lecture 9</b> <i>Open Code</i> <b>Group work</b> <i>Analysing qualitative data</i> <i>Practical example</i>	
Saturday May 17 08:30	10:00	10:30	12:	13:30	15:00	15:30	17:00
<b>Group work</b> <i>Analysing qualitative data</i> <i>Practical example</i>	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group session</b> Presentation results  <b>Lecture 10</b> <i>Writing up a qualitative study report/ research proposal analysis</i>	<b>L</b> <b>U</b> <b>N</b> <b>C</b> <b>H</b>	<b>Group/individual work</b> <i>Quality assessment qualitative research paper</i>	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group session</b> Presentation quality assessment  <i>Evaluation workshop</i>	

**B. INTREC Block 2 – Program Workshop on Quantitative Research Methods for Social Determinants of Health, 19-23 May 2014, Accra**

Monday 19 <sup>th</sup> May 08:30	10:00	10:30	12:00	13:30	15:00	15:30	17:00
<b>Welcome!</b> Introduction to course and short <b>presentation</b> of participants and teachers  <b>Lecture</b> Overview of measurement issues and bias in SDH research	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group discussion/exercise</b> Measurement methodology in SAGE publications  <b>Student presentation(s)</b> Proposed research question on SDH	<b>L</b> <b>U</b> <b>N</b> <b>C</b> <b>H</b>	<b>Lecture</b> Study designs for research on SDH (focus on SAGE)	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group discussion/exercise</b> Developing your analysis plan – using the correct measurement tools  <b>Student presentation(s)</b> Proposed research question on SDH	
Tuesday 20 <sup>th</sup> May 08:30	10:00	10:30	12:00	13:30	15:00	15:30	17:00
<b>Lecture</b> Describing data; normal distribution; measures of variance	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group discussion/exercise</b> Descriptive analyses in SAGE publications  <b>Student presentation(s)</b> Proposed research question on SDH	<b>L</b> <b>U</b> <b>N</b> <b>C</b> <b>H</b>	<b>Lecture</b> Hypothesis testing; analysing continuous and categorical data	<b>B</b> <b>R</b> <b>E</b> <b>A</b> <b>K</b>	<b>Group discussion/exercise</b> Developing your analysis plan – using descriptive analyses  <b>Student presentation(s)</b> Proposed research question on SDH	

<b>Wednesday 21<sup>st</sup> May</b>	<b>10:00</b>	<b>10:30</b>	<b>12:00</b>	<b>13:30</b>	<b>15:00</b>	<b>15:30</b>	<b>17:00</b>
<b>Lecture</b> Correlation and regression	<b>B R E A K</b>	<b>Group discussion/exercise</b> Correlation and regression in SAGE publications	<b>L U N C H</b>	<b>Lecture</b> Longitudinal analysis and survival	<b>B R E A K</b>	<b>Group discussion/exercise</b> Developing your analysis plan – using correlation and regression	
<b>Thursday 22<sup>nd</sup> May</b> <b>08:30</b>	<b>10:00</b>	<b>10:30</b>	<b>12:00</b>	<b>13:30</b>	<b>15:00</b>	<b>15:30</b>	<b>17:00</b>
<b>Lecture</b> Logistic regression	<b>B R E A K</b>	<b>Group discussion/exercise</b> Logistic regression in SAGE publications	<b>L U N C H</b>	<b>Lecture</b> Introduction to multilevel models	<b>B R E A K</b>	<b>Group discussion/exercise</b> Developing your analysis plan – using logistic regression and multilevel models	
<b>Friday 23<sup>rd</sup> May</b> <b>08:30</b>	<b>10:00</b>	<b>10:30</b>	<b>12:00</b>	<b>13:30</b>	<b>15:00</b>	<b>15:30</b>	<b>17:00</b>
<b>Lecture</b> Presentation of results	<b>B R E A K</b>	<b>Group discussion/exercise</b> Tables and figures in SAGE publications	<b>L U N C H</b>	<b>Lecture</b> Introduction to mixed methods research	<b>B R E A K</b>	<b>Group discussion/exercise</b> Developing your analysis plan – presentation of results	

## Appendix D: Report on the INTREC Mixed Methods Workshop on INDEPTH Website



### INTREC workshop on research methods ongoing in Accra



Fifteen participants from 11 INDEPTH member Health and Demographic Surveillance Systems (HDSSs) in five countries are being trained on qualitative and quantitative research methods for addressing inequities and social determinants of health (SDH) in Africa.

The training programme which is an initiative of the INDEPTH Training and Research Centers of Excellence (INTREC) is a new professional development programme designed for INDEPTH scientists interested SDH.

The INTREC, an EU funded project that began in January 2012 is a result of collaboration action between several international partners, including University of Amsterdam, The Netherlands; Heidelberg University, Germany; Gadjah Mada University, Indonesia; Harvard University, USA; Umea University, Sweden and INDEPTH Network.

The aims of INTREC include to provide SDH-related training for researchers from the INDEPTH member HDSSs in Africa and Asia and to enable them to present their research findings in an actionable form to decision makers.

With joint forces and expertise, the six INTREC partners have created a training programme for young INDEPTH scientists on SDH that consist of five educational blocks.

Recounting the history of INTREC, the Capacity Strengthening and Training Manager of INDEPTH, Dr Martin Bangha, said that the foundation of the project consisted a baseline situation analyses that was conducted in seven different countries of Africa and Asia namely Ghana, South Africa, Tanzania, Bangladesh, India, Indonesia and Vietnam.



In particular, the baseline analysis focused on gaps, barriers and opportunities for training on SDH, thereby laying the ground work for the design of this training program.

The current workshop is the second educational block following immediately after an online course that was taken by 30 scientists from 19 member HDSSs in nine countries.

As expected, the workshop will equip participants with an understanding of how qualitative and quantitative research approaches may be useful in projects that focus on SDH and basic skills that are needed to critically design and carry out their own research projects in the field of SDH.

The entire workshop runs from May 13 -23, 2014, in Accra with the first half (13-17 May) devoted to the qualitative component and quantitative running from 19-23 May.

Dr Joke Haafkens of the University of Amsterdam, the Netherlands and Dr Klas-Goran Sahlen of the University of Umea, Sweden are the main facilitators for the qualitative workshop while Drs Haribert Ramroth and Nicholas Henschke will mainly facilitate the quantitative component.

Dr Haafkens said the qualitative workshop has been structured in sessions that are designed to guide participants step-by-step in planning their own qualitative research project on SDH. The sessions will consist of a mixture of lectures, presentations by participants, hands on training and group discussions.