WORKSHOP ON ENVIRONMENT STATISTICS IN SUPPORT OF THE IMPLEMENTATION OF THE FRAMEWORK FOR THE DEVELOPMENT OF ENVIRONMENT STATISTICS (FDES 2013)

ARUSHA, UNITED REPUBLIC OF TANZANIA
6-10 JULY 2015

Final Report

United Nations Statistics Division
in collaboration with the
East African Community Secretariat

Background and objectives of the Workshop

1.   The United Nations Statistics Division (UNSD), in collaboration with the East African Community (EAC), organised a Workshop on Environment Statistics in support of the implementation of the Framework for the Development of Environment Statistics (FDES 2013). The Workshop was held in Arusha, United Republic of Tanzania (hereafter, Tanzania) from 6 to 10 July 2015, with hosting and on-ground support provided by the EAC Secretariat and the National Bureau of Statistics (NBS), Tanzania.

2.   The background to organizing this Workshop on the implementation of the FDES 2013 was that the United Nations Statistical Commission, at its forty-fourth session in 2013, endorsed the revised FDES 2013 as the framework for strengthening environment statistics programmes in countries. The Commission also recognized the FDES 2013 as a useful tool in the context of sustainable development goals and the post-2015 development agenda.

3.   This Workshop was the first activity of the Development Account (DA) Project "Supporting Member States in developing and strengthening environment statistics and integrated environmental-economic accounting for improved monitoring of sustainable development", of which Module A focuses on strengthening environment statistics in the EAC Secretariat and its five member states.

4.   The key objectives of the Workshop were to:

    a. build national capacities for the implementation of the FDES 2013;
    b. provide statisticians and experts from ministries of environment (or equivalent institutions) with detailed knowledge and understanding of contemporary approaches to environment statistics, thus allowing them to identify gaps and deficiencies in environmental data, and contribute to the production of regular, accurate and reliable environment statistics; and
    c. discuss and develop a programme on environment statistics for the EAC region.

5.   The Workshop discussed a draft set of recommendations for the EAC Partner states and agreed on a regional programme on environment statistics and implementation of the FDES 2013. Ten recommendations were agreed upon by all in attendance at the Workshop. These recommendations appear within session 13 of this report.

6.   The Workshop was attended by 26 participants. These included representatives from National Statistical Offices (NSOs) and Ministries of Environment (or equivalents) of Burundi, Kenya, Rwanda, Uganda and Tanzania, as well as from the following regional/international organizations and training institutions: the United Nations Economic Commission for Africa (UNECA), the United Nations Environment Programme (UNEP), the Common Market for Eastern and Southern Africa (COMESA), the Eastern Africa Statistical Training Centre (EASTC) and the School of Statistics and Planning, Makerere University. Additionally, one more participant attended from the Arusha Urban Water Supply and Sanitation Authority (AUWSA). The Workshop was chaired by Mr. Anthony Mugane, Ministry of Environment, Water and Natural Resources, Kenya.

7.   The list of participants is attached as Annex 1.

Opening session

8. In her opening address, Dr. Albina A. Chuwa, Director General, NBS, Tanzania welcomed all participants to the Workshop and expressed thanks to all for attending such an important Workshop. Dr. Chuwa expressed gratitude to UNSD for holding this Workshop in Tanzania and assured all that the Workshop's expected output would be achieved. Dr. Chuwa referenced that this Workshop is the first activity in the DA Project of UNSD to assist EAC Partner states in strengthening environment statistics. She reminded all that EAC Partner states are committed to this Project and to its successful implementation for improving the environment.

9. Dr. Chuwa highlighted that it is evident that of the three pillars of sustainable development, monitoring and measurement of progress towards environmental sustainability is clearly the weakest and noted that an inability to inform about environmental sustainability is severely hampered by the insufficient production and coordination of environment statistics. It was stated that a holistic plan to re-vamp the production of environment statistics has become very important. Dr. Chuwa further stressed that environment statistics is still considered to be a relatively new and challenging field yet the demand for these statistics is increasing in line with the continued environmental challenges faced by modern society and development.

10. Dr. Chuwa extended gratitude to UNSD and the EAC Secretariat for bringing together data producers and data users from the five EAC Partner states, to share with them the concepts and standards of the FDES 2013, and to build capacities for a sustained and regular production of accurate, reliable and timely environment statistics, that are at the heart of policy formulation and decision making.

11. In her welcoming remarks, Ms. Margaret Martin, Regional Statistical Manager, NBS, Tanzania warmly welcomed all participants to the Workshop. She expressed gratitude at the opportunity to empower statisticians and to strengthen NSOs in participation on environmental decision-making, and made the promise to impart the knowledge acquired at this Workshop to empower other statisticians and for all in attendance to be good representatives of their own nations.

12. In his welcoming remarks, Mr. Lubili Marco Gambamala, Statistics Expert, Statistics Department, EAC Secretariat welcomed all in attendance and expressed the timeliness of this Workshop which complements other strategies, protocols and programmes in the EAC's current schedule. He expressed the importance of environment statistics as inputs to evidence-based policy and decision making, and their relevance to sustainable development and the post-2015 development agenda.

13. In her key note address, Ms. Reena Shah, Chief, Environment Statistics Section, UNSD welcomed all in attendance and especially thanked the EAC and the NBS, Tanzania for their collaboration in organizing this Workshop as well as the various resource persons form other organizations. Ms. Shah reminded all that this Workshop is one of the activities of the United Nations DA project "Supporting Member States in developing and strengthening environment statistics and integrated environmental-economic accounting for improved monitoring of

sustainable development", of which Module A focuses on strengthening environment statistics in the EAC Secretariat and its five member states.

14.   Ms. Shah noted that the implementation of the FDES 2013 will help countries address the increasing demand for environmental information in support of integrated policies in the follow-up to Rio+20, as outlined in the outcome document "The Future We Want", and to the post-2015 development agenda through the strengthening of environmental statistics and indicators.   She further stressed that strengthening national statistical systems is a crucial component of environment statistics and that ad hoc data collections without countries' involvement will not provide sustainable statistical programmes. She emphasized that to improve monitoring, it is imperative to bring together the various sectors in a unified and coordinated statistical system and that this is particularly relevant in environment statistics, where data come from a variety of different sources.   She also noted that countries should be encouraged to establish robust and coherent national strategies for their data needs on environment statistics.

15.   In his vote of thanks, Prof. Innocent Ngalinda, Rector, EASTC, welcomed all and shared with plenary the problem faced regarding the training of environment statistics. Prof. Ngalinda highlighted the importance of having environmental statisticians capable of imparting knowledge to newcomers so as to build capacity in this field. He thanked the organisers that are UNSD, the EAC Secretariat and the NBS, Tanzania for organising this important Workshop in Arusha Tanzania. He reiterated the importance of having available in the EAC region highly trained professionals in environment statistics and specifically at the EASTC who will train the upcoming generation in environment statistics.

Adoption of the agenda
16.   The following agenda items were adopted:

    a.   Session 1: Need for and use of environmental statistics and indicators;
    b.   Session 2: National presentations on the state of environment statistics; other countries' experiences with the FDES;
    c.   Session 3: Overview of environment statistics;
    d.   Session 4: The FDES and the Basic/Core Sets of Environment Statistics (FDES Chapters 2 and 4);
    e.   Session 5: The Environment Statistics Self-Assessment Tool (ESSAT);
    f.   Session 6: FDES, Component 1: Environmental Conditions and Quality;
    g.   Session 7: FDES, Component 2: Environmental Resources and their Use;
    h.   Session 8: FDES, Component 3: Residuals;
    i.   Special Presentation and Excursion
    j.   Session 9: FDES, Component 4: Extreme Events and Disasters;
    k.   Session 10: FDES, Component 5: Human Settlements and Environmental Health;
    l.   Session 11: FDES Component 6: Environment Protection, Management and Engagement;
    m. Session 12: Training needs and the implementation of the FDES 2013;
    n.   Session 13: Toward a regional programme of environment statistics; and
    o.   Closing remarks.

17.	The discussions were organised in both plenary and working group sessions. The agenda is attached hereto as Annex 2.

18.	The Workshop's discussions were based on presentations prepared by various participants. Furthermore, participants were divided into two groups. When applying the ESSAT part II to each FDES component, groups had opportunity to present their experience and feedback to plenary. The two groups are shown in Annex 3.

19.	All documentation and presentations used in the Workshop are available and can be downloaded at: http://unstats.un.org/unsd/environment/EAC.html

OUTCOME OF DELIBERATIONS

Session 1: Need for and use of environmental statistics and indicators

20.	In this session, seven presentations were made on: Regional activities in environment statistics (EAC); Need for and use of environmental statistics and indicators (UNECA); UNEP's perspective on regional needs (UNEP); Justification for environment statistics and indicators in COMESA (COMESA); International requirements for environmental statistics and indicators (UNSD); International data sources for environment statistics (UNSD); and Strengthening environment statistics for monitoring the Sustainable Development Goals (SDGs) (UNSD).

21.	Mr. Lubili Marco Gambamala, (EAC) made a presentation on regional activities in environment statistics. His presentation included information on the regional context, the program for environmental protection and sustainable utilization of natural resources in the EAC, and the need for environment statistics in the EAC. He also described what EAC currently compiles and disseminates with regard to environment statistics.

22.	Mr. Xiaoning Gong (UNECA), presented on the need for and use of environmental statistics and indicators. His presentation outlined regional needs for and use of environmental statistics and indicators (Common Africa Position, agenda 2063, SDGs) and the needs for statistical capacity building on the African continent (statistical capacity, availability and quality of data, assessment of the system).

23.	Mr. Frank Turyatunga (UNEP) presented UNEP's perspective on regional needs. His presentation included content on UNEP's mandate, existing sources of environmental data and information, as well as on the current status of UNEPLive.

24.	Mr. Wilson Chizebuka (COMESA) presented on the justification for environment statistics and indicators in COMESA. His presentation included information on the COMESA Treaty and its policy background, the COMESA Statistics Strategy and a mapping of the FDES 2013 to COMESA Treaty provisions.

25.	Ms. Reena Shah (UNSD) made a presentation on international requirements for environmental statistics and indicators. Her presentation included main types of international requirements and how they relate to the SDGs, international reporting, international data collection, and UNSD data dissemination.

26.	Ms. Reena Shah (UNSD) made a presentation on international data sources for environment statistics. This presentation included information on and availability of data from international organizations and other institutions on, inter alia, greenhouse gas emissions, energy, environmentally-related diseases, total forest area, natural disasters, etc.

27.	Ms. Reena Shah (UNSD) further made a presentation on strengthening environment statistics for monitoring the SDGs. Her presentation included information on how the FDES can help countries compile environmentally-related SDG indicators.

Discussion:
28.	Participants discussed the importance of having frameworks for data sharing especially since many data sources come from different ministries, departments, etc. To this end, the EAC mentioned its use of working groups on national accounts, finance statistics and agricultural statistics which help harmonise differing methodologies to allow for comparable statistics in the EAC region. Emphasis was also stressed on the need for improved methodologies in the field of environment statistics. Such methodologies were hoped to be learned throughout this Workshop. Comment was further made of the work being done by COMESA and the importance of searching for complementarities.

29.	The delegate from UNEP commented on the need to establish an understanding of the state of our environment and providing relevant data in a timely manner. Mention was made to the importance and relevance of scientific assessments, collaboration (for example, among non-resident agencies such as UNEP with institutions in countries), drones with sensors, satellite imagery, etc. as data sources.

30.	Discussion was held on the best method of applying the various data sources mentioned above. One approach advocated was to first identify the indicator or statistic which is desired to be reported, and to then decipher what is the best methodology. Technological advancements are helping to a great extent but cannot be solely relied upon as data sources.

31.	The delegate from COMESA commented on COMESA's assessment of their member states' environment statistics programmes, and stated that COMESA is still assessing member states and engaging with them. Assessment is being made to determine which countries already have an adequate structure of environment statistics. Comment was further made that the FDES must be adopted to help monitor the COMESA treaty (several articles of which have been mapped to the FDES Basic Set of Environment Statistics' components by COMESA).

32.	Regarding international requirements and data sources, comment was made that countries tend to first and foremost prefer to use their own data. It is preferable for countries first to hold ownership of their data and to then seek best ways to share it. One alternative whereby reliance is made on international data sources (which contain estimates) can lead to data of questionable accuracy. Questions were also raised by member states as to why international organisations

cannot share their modelling techniques with countries. Most in plenary agreed that it is preferred for countries to build capacity themselves to improve data collection and provision of statistics. Emphasis was also placed on the need for countries to have current and regular collaboration with international organisations.

33.   Regarding the FDES and its relationship to the SDGs, the plenary expressed its eager anticipation at the outcome of the United Nations summit to adopt the post-2015 Development Agenda which is scheduled to take place on 25-27 September 2015.

Session 2: National presentations on the state of environment statistics; other countries' experiences with the FDES

34.   In this session, five presentations were made on the respective experiences on the state of environment statistics in the five EAC Partner states. An additional presentation on other countries' experiences with the FDES was also delivered.

35.   Ms. Mary Wanyonyi (Kenya National Bureau of Statistics and on behalf of Mr. Antony N. Mugane, Ministry of Environment, Water and Natural Resources) presented on environment statistics in Kenya. Her presentation included information on the environmental situation in Kenya, main environmental issues/concerns and related policies, main institutions involved in environmental data/statistics and information production, activities and outputs in environment statistics and information/data collection, and future plans for environment statistics. She noted that certain problems exist such as the lack of: basic level statistics; statistical software; comprehensive data on the environment; environment statistics units; and good quality statistics.

36.   Mr. Jean Niyigaba (National Institute of Statistics of Rwanda (NISR) and on behalf of Mr. Habimana Emmanuel, Rwanda Environment Management Authority) delivered a presentation on the status of Rwandan environment statistics. His presentation included information on the status of national environment statistics, data sources, and identification of capacity building needs for compilation of environment statistics. He noted that in order to develop natural capital accounts on land and water as part of a World Bank project, they recognized that they don't have enough data on land and water.

37.   Ms. Donata Kemirembe Ponsian (Vice President's Office, Tanzania and on behalf of Mr. Stephen Nelson Maganda, National Bureau of Statistics, Tanzania) made a presentation which detailed the environment situation in Tanzania, main environment issues/concerns and related policies, main institutions involved in environmental data/statistics and information production, activities and outputs in environment statistics and information, and future plans in environment statistics. She noted that an increase in coordination due to there being many stakeholders, as well as in financial resources were necessary for improved environment statistics.

38.   Mr. Feruzi Mohamed (Burundian Office for Environment Protection (OBPE) and on behalf of Mr. François Vyizigiro (Institute of Statistics and Economic Studies, Burundi (ISTEEBU)) presented on the state of the environment in Burundi, its environmental problems, activities and achievements in environment statistics and environmental information, and future plans of environment statistics.

39.   Mr. Emmaneul Menyha (Uganda Bureau of Statistics (UBOS) presented on the state of environment statistics in Uganda. His presentation included information on the National Environment Management Authority (NEMA) and the National Environment Management Policy (NEMP), UBOS and a Plan for National Statistics Development, environment information, and efforts to improve environment statistics. He noted that environment statistics became part of a Directorate of Agriculture and Environment Statistics at UBOS two years ago which has elevated its importance. A proposal for the coordination of environment statistics has been written by UBOS which is mandated to coordinate, monitor and supervise the national statistical system, and letters to the different environmental data producers are under preparation.

Discussion:
40.   A delegate from Kenya made comment on the lack of any established periodic environment-specific survey within Kenya, and that, so as to help this situation, questions on environment are often added to existing surveys (e.g. questions pertaining to waste management and water use may be added to household surveys).

41.   A Kenyan delegate further commented that an annual state of the environment report is produced. Data are collected, for example, on fish stocks, rainfall, etc. International standards are used to measure environment statistics such as Millennium Development Goal definitions and standards, and standards defined in the World Health Organisation (WHO)/United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply and Sanitation.

42.   Throughout the national presentations, comment was made that for statistics requiring a highly scientific methodology such as water quality, the NSO should not try to collect such data themselves but should liaise with those institutions with professional expertise and obtain these data from such institutions.

43.   Participants also mentioned that unfortunately, a limitation with using administrative data is that periodicity of data availability remains an issue. Lack of human resources with satisfactory numeracy skills was also cited as an issue for some countries.

44.   One delegate commented on the onus of an NSO to make use of and publish data which it receives from line ministries. In so doing, this encourages line ministries to continue providing data to NSOs, and to pursue opportunities to collaborate. If data are not published, the NSO runs the risk of losing the interest of the line ministry to collaborate in future.

45.   The delegate from Uganda commented on the importance and the status of the Uganda Bureau of Statistics Act (1998) and how it may be amended in future to encourage collaboration among institutions other than just the UBOS.

Session 3: Overview of environment statistics

46.   In this session, two presentations were made on: an overview of environment statistics – characteristics and challenges (UNSD); and the use of geographic information systems (GIS) and remote sensing for environment statistics (Resource person).

47.   Mr. Marcus Newbury (UNSD) delivered a presentation entitled overview of environment statistics – characteristics and challenges which corresponds to chapter 1 of the FDES. He presented, inter alia, on the objective and scope of environment statistics as well as main uses and user groups of environment statistics.

48.   Mr. Anand Sookun (Resource person) made a presentation on the use of GIS and remote sensing for environment statistics. Among other topics, his presentation included information on temporal and spatial considerations, GIS data and GIS tools.

Discussion:
49.   The topic of environmental indices featured in the group's conversation, though it was soon pointed out that international organisations such as UNSD and UNEP are not engaged in this type of work. One reason stated were problems concerning subjectivity inherent in methodology, the choice of the underlying indicators, as well as the data quality. For any interest in environmental indices, participants were referred to academia.

50.   Participants expressed interest in learning about GIS. The resource person who presented on GIS referred participants to several sources freely available online. Stress was placed on how GIS skills are becoming increasingly necessary for environmental statisticians, the basics of which may be possible to learn in a one-week training course.

51.   Participants from training institutions expressed gratitude at having been informed on GIS, and were interested in adding GIS to curricula on environment statistics courses.

Session 4: The FDES and the Basic/Core Sets of Environment Statistics (FDES Chapters 2 and 4)

52.   In this session, three presentations were made on: the conceptual foundation and the structure of the FDES (UNSD); from the Basic Set to the Core Set of Environment Statistics (UNSD); and the Manual on the Basic Set of Environment Statistics.

53.   Ms. Reena Shah (UNSD) presented on the conceptual foundation and the structure of the FDES which corresponds to chapter 2 of the FDES. Her presentation included content on why a framework for environment statistics is needed, a description of the main concepts underlying the FDES, an overview of the overall structure of the FDES and its linkages to other frameworks and systems, as well as the revision and development process of the FDES.

54.   Mr. Marcus Newbury (UNSD) delivered a presentation entitled from the Basic Set to the Core Set of Environment Statistics which corresponds to chapter 4 of the FDES. His

presentation included information on the description of the three tiers of the Basic Set of Environment Statistics, and an explanation of the Core Set of Environment Statistics.

55.   Mr. Marcus Newbury (UNSD) presented on the Manual on the Basic Set of Environment Statistics. His presentation included information on detailed methodology sheets that are part of the forthcoming Manual which will provide more guidance for the compilation of environment statistics.

Session 5: The Environment Statistics Self-Assessment Tool (ESSAT)

56.   Ms. Reena Shah and Mr. Marcus Newbury (UNSD) collaboratively presented on the ESSAT, part I: Institutional Dimension of Environment Statistics, and the ESSAT, part II: Statistics Level Assessment. Their presentation included information on the structure, purpose and nature of the questions of the ESSAT, as well as definitions of terminology used throughout.

Session 6: FDES, Component 1: Environmental Conditions and Quality

57.   In this session, initially two presentations were delivered on: component 1, its sub-components and statistical topics (UNSD); and on land cover and land use in environment statistics (Resource person). Participants were then divided into two groups so as to apply the ESSAT part II to component 1, and then one more presentation was delivered by each group.

58.   Ms. Reena Shah (UNSD) presented on component 1: Environmental Conditions and Quality, its sub-components and statistical topics. This presentation included the sub-components, 1.1: Physical Conditions; 1.2: Land Cover, Ecosystems and Biodiversity; and 1.3: Environmental Quality.

59.   Mr. Anand Sookun (Resource person) presented on Land Cover and Land Use Statistics. Content of his presentation included land cover classifications, methodological guidance for countries, tools and software products.

60.   Ms. Donata Kemirembe Ponsian (Tanzania) presented on group 1's experience applying the ESSAT to sub-components 1.1: Physical Conditions; 1.2: Land Cover, Ecosystems and Biodiversity, and 1.3: Environmental Quality.

61.   Mr. Jean Niyigaba (Rwanda) presented on group 2's experience applying the ESSAT to sub-component 1.1: Physical Conditions.

Discussion:
62.   Upon applying the ESSAT to component 1, comment was made that for the columns asking questions about primary and secondary institutions, the primary institution could be regarded as the institution responsible for collecting the statistics, and the secondary institution

as that responsible for reporting the statistic. One suggestion was even made to omit the words, "primary" and "secondary" from each column and to re-word the columns so as to respectively read, "Institution responsible for collecting the statistic", and "Institution responsible for reporting the statistic".

63. Regarding the final column, one suggestion was made to change the wording from, "Format of statistic", to, "Dissemination format".

64. One delegate expressed that there is difficulty in entering data into the spreadsheet, and requested for a more user-friendly version for data entry to be supplemented by a final table automatically generated after data entry is completed.

Session 7: FDES, Component 2: Environmental Resources and their Use

65. In this session, initially one presentation was delivered on component 2, its sub-components and statistical topics (UNSD). Participants were then again divided into groups so as to apply the ESSAT part II to component 2, and then one more presentation was delivered by each group.

66. Ms. Reena Shah (UNSD) presented on component 2: Environmental Resources and their Use, its sub-components and statistical topics. This presentation included the sub-components, 2.1: Mineral Resources; 2.2: Energy Resources; 2.3: Land; 2.4: Soil Resources; 2.5: Biological Resources; and 2.6: Water Resources.

67. Mr. Emmanuel Menyha (Uganda) presented on group 1's experience applying the ESSAT to sub-component 2.5: Biological Resources.

68. Mr. Habimana Emmanuel (Rwanda) presented on group 2's experience applying the ESSAT to sub-components 2.1: Mineral Resources; 2.2: Energy Resources; 2.3: Land; and 2.5: Biological Resources.

Discussion:
69. Regarding timber resources, comment was made on the degree of difficulty in measuring timber resources in tonnes due to the varying densities of different kinds of wood. For this very reason, suggestion was made that it may be easier for countries to measure timber resources in volume (by species) rather than mass, or tonnes.

70. As for statistics on fish capture production (within the FDES' component 2.5: Biological Resources), comment was made at the often large discrepancies between fish caught and fish landed. Reason given was that it is often that fish landed are those which are reported and weighed, whereas many catches are not weighed. Additionally, flag of fishing vessel is often an issue whereby a vessel with the flag of a given country may successfully catch large volumes of fish in a location far from its own territories. Official statistics often miss this important consideration.

Special Presentation and Excursion to the EAC Headquarters, Banana Investments Ltd. (wastewater treatment plant) and the Arusha Urban Water Supply and Sanitation Authority (AUWSA)

71.   Immediately following the completion of session 7, the plenary received a presentation delivered by Mr. Mkama Dionizi, Water Sewerage Engineer of the AUWSA. In the agenda, this presentation has been included in session 8 as it is related to residuals. Mr. Dionizi provided a historical background to AUWSA's operations, and illustrated challenges confronted such as sludge accumulation affecting the productivity of the site's anaerobic pond. Mr Dionizi shared statistics and other information on the AUWSA's wastewater treatment plant which is located on the outskirts of Arusha.

72.   Mr. Dionizi explained the anaerobic pond, facultative pond and maturation pond treatment through which Arusha's wastewater goes prior to being discharged to the environment, and outlined issues such as faecal coliform levels in water, and other statistics such as milligrams per litre of phosphate, nitrate, sulphide, chromium, etc.

73.   All participants visited the EAC Headquartes, Banana Investments Ltd. (wastewater treatment plant) and the AUWSA wastewater treatment site. At the EAC Headquarters, participants were given a tour of the premises and they received information about the key organs and functioning of the EAC Secretariat.

74.   At the Banana Investments site, the group received information on the processing of wastewater through a biodigester-constructed wetlands facility for treatment of wastewater with energy recovery. The group was also briefed on standards of statistics pertaining to the FDES topic 3.2.1: Generation and pollutant content of wastewater. For example, Tanzanian national standards of biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids, etc. were shared with participants, as well as the method of lab testing.

75.   At the AUWSA treatment site, participants saw first-hand the treatment process of wastewater prior to entering the first pond (anaerobic pond), and then progressively flowing to the two facultative ponds, the two maturation ponds, and then being discharged to the environment. Participants were afforded opportunity to ask detailed questions calling upon Mr. Dionizi's expertise in the field of wastewater treatment.

76. Participants expressed their sincere appreciation to the EAC Secretariat, Banana Investments Ltd., and AUWSA for kindly agreeing to allow for a visit to their premises.

Session 8: FDES, Component 3: Residuals

77.   Following the excursion, in this session, initially two presentations were delivered on: component 3, its sub-components and statistical topics (UNSD); and on Climate Change and Greenhouse Gases (Resource person). Participants were then again divided into groups so as to apply the ESSAT part II to component 3, and then one more presentation was delivered by each group.

78. Mr. Marcus Newbury (UNSD) presented on component 3: Residuals. This presentation included the sub-components, 3.1: Emissions to Air; 3.2: Generation and Management of Wastewater; 3.3: Generation and Management of Waste; and 3.4: Release of Chemical Substances.

79. Mr. Anand Sookun (Resource person) presented on Climate Change and Greenhouse Gases. Content of his presentation included understanding climate change, greenhouse gas inventories, scope of climate change-related statistics, and linkages to the FDES.

80. Mr. Anthony Nyotu Mugane (Kenya) presented on group 1's experience applying the ESSAT to sub-components 3.1: Emissions to Air, and 3.2: Generation and Management of Wastewater.

81. Mr. Jean Niyigaba (Rwanda) presented on group 2's experience applying the ESSAT to sub-components 3.3: Generation and Management of Waste and 3.4: Release of Chemical Substances.

Discussion:
82. Firstly, regarding discussion on climate change, participants raised the fact that Africa is a net sink of greenhouse gas (GHG) emissions, although it is very difficult to calibrate sequestration of natural vegetation. Another issue shared among participants was the introduction of foreign species of vegetation into Africa which can have their carbon sequestration more easily calibrated than indigenous species. The additional issue surrounding this is that alien species have a negative effect on African biodiversity.

83. The resource person shared with the group the issue in data collection and data quality of non-Annex I parties to the United Nations Framework Convention on Climate Change (UNFCCC). For non-Annex I parties there is no mandatory and regulated peer review of data (which is the case for Annex I parties) and which leads to data reported being of questionable quality.

84. Regarding component 3, participants found a lack of data availability within sub-component 3.2: Generation and Management of Wastewater which was owing to the fact that there was often not any collaboration between an NSO and a municipal level government body such as a wastewater treatment plant.

85. Rwanda shared its experience with the plenary regarding private companies recycling waste as per agreements with the Ministry of Environment. Since such recycling activities are subjected to regular inspection by the Ministry of Environment, the point was made that data should be accessible to the NSO.

Session 9: FDES, Component 4: Extreme Events and Disasters

86. In this session, initially one presentation was delivered on component 4, its sub-components and statistical topics (UNSD). Participants were then again divided into groups so

as to apply the ESSAT part II to component 4, and then one more presentation was delivered by each group.

87.   Ms. Reena Shah (UNSD) presented on component 4: Extreme Events and Disasters. This presentation included the sub-components, 4.1: Natural Extreme Events and Disasters, and 4.2: Technological Disasters.

88.   Mr. Anthony Nyotu Mugane (Kenya) presented on group 1's experience applying the ESSAT to sub-component 4. 1: Natural Extreme Events and Disasters.

89.   Mr. Habimana Emmanuel (Rwanda) presented on group 2's experience applying the ESSAT to sub-component 4.2: Technological Disasters.

Discussion:
90.   During discussion, one comment was made that the examples of, "Type of natural extreme event and disaster" used terminology that was too specialised. Existing examples include, geophysical, meteorological, hydrological, etc. whereas more colloquial terms such as, earthquake, flood, drought, etc. were requested. However, participants were referred to Annex D of the FDES where appropriate methodological guidance exists for the classification of disasters as per CRED's (Centre for Research on the Epidemiology of Disasters) EMDAT (Emergency Events Database) classification. For example, by using this classification, participants were made aware that earthquakes fall within the geophysical disaster sub-group.

91.   Comment was also made that participants should bear in mind that although some disasters, especially technological disasters such as those which have occurred in Chernobyl and Fukushima in the past, may not occur in one's country, statistics and information about such disasters may be very relevant to policy decisions. Participants were reminded to consider this when considering the relevance and priority of statistics while using the ESSAT.

92.   For analysis and classification of disasters, participants were advised that it may help to consider disasters as being either of slow (e.g. drought) or sudden onset (e.g. earthquake).

93.   Participants from countries with little endowment of natural resources expressed that the relevance and priority of statistics in this component in general was quite high. The argument for such a comment was that these countries are particularly reliant on human resources, and that this component demonstrates the often negative impact the environment can have on humans.

94.   The issue was raised of administrative boundaries being drawn and agreed upon often completely irrespectively of the natural environment. It was discussed that this is a hurdle common to many aspects of environment statistics and that it further demonstrates the need for inter-institutional collaboration across different levels of government, and often internationally such as at the EAC sub-regional level.

Session 10: FDES, Component 5: Human Settlements and Environmental Health

In this session, initially one presentation was delivered on component 5, its sub-components and statistical topics (UNSD). Participants were then again divided into groups so as to apply the ESSAT part II to component 5, and then one more presentation was delivered by each group.

95. Mr. Marcus Newbury (UNSD) presented on component 5: Human Settlements and Environmental Health. This presentation included the sub-components, 5.1: Human Settlements, and 5.2: Environmental Health.

96. Ms. Donata Kemirembe Ponsian (Tanzania) presented on group 1's experience applying the ESSAT to sub-component 5.2: Environmental Health.

97. Mr. Habimana Emmanuel (Rwanda) presented on group 2's experience applying the ESSAT to sub-component 5.1: Human Settlements.

Discussion:
98. Throughout discussions issues raised included difficulties in measuring the homeless population in some countries, especially where some towns have part-time residences or people migrating with seasons.

99. One group reported on their interpretation of the Institution questions in the ESSAT part II. This group concluded to choose to answer as though the question was asking for only one institution, and to then leave it to that institution's internal arrangements to determine who key stakeholders are, how arrangements for collecting data and publishing the statistics should be made, etc.

100. Some participants expressed that, for much of sub-Saharan Africa, there is too much weighting of questions toward urban populations and not enough toward rural populations for parts of component 5, and in particular topic 5.1.5: Environmental concerns specific to urban settlements. UNSD informed the plenary that an urban/rural breakdown is proposed for several statistics under the Potential Aggregations and Scales in the Basic Set of Environment Statistics.

101. Regarding topic 5.2.1: Airborne diseases and conditions, comment was made that it is preferable, where possible, to collect statistics broken down by gender. This comment bears in mind the issue of smoke inhalation being much more common in women than men which is caused by cooking in kitchens with open fire.

102. One participant expressed that, for instance, a statistic in topic 5.1.5: Environmental concerns specific to urban settlements, Population using hybrid and electric modes of transportation, was simply not of interest (or relevance) and is unlikely to be so for many years to come. This was somewhat noticed to be justified in that the FDES Basic Set of Environment Statistics considers this a tier 3 statistic.

Session 11: FDES, Component 6: Environment Protection, Management and Engagement

103. In this session, initially one presentation was delivered on component 6, its sub-components and statistical topics (UNSD). Participants were then again divided into groups so as to apply the ESSAT part II to component 6, and then one more presentation was delivered by each group.

104. Mr. Marcus Newbury (UNSD) presented on component 6: Environment Protection, Management and Engagement. This presentation included the sub-components, 6.1: Environment Protection and Resource Management Expenditure; 6.2: Environmental Governance and Regulation; 6.3: Extreme Event Preparedness and Disaster Management; and 6.4: Environmental Information and Awareness.

105. Ms. Donata Kemirembe Ponsian (Tanzania) presented on group 1's experience applying the ESSAT to sub-components, 6.3: Environmental Health, and 6.4: Environmental Information and Awareness.

106. Mr. Habimana Emmanuel (Rwanda) presented on group 2's experience applying the ESSAT to sub-components, 6.1: Environment Protection and Resource Management Expenditure and 6.2: Environmental Governance and Regulation.

Session 12: Training needs and the implementation of the FDES 2013

107. In this session, five presentations were delivered on: Putting the FDES to work: a Blueprint for Action (UNSD); Training environment statisticians at EASTC in support of the FDES (EASTC); Role of the School of Statistics and Planning in implementation of the FDES (SSP, Makerere University); Roadmap for FDES (COMESA); and the Funding window under regional integration support mechanism (COMESA).

108. Mr. Marcus Newbury (UNSD) presented on putting the FDES to work: a Blueprint for Action. His presentation outlined a strategy and the fundamental pillars required to put the FDES into action.

109. Mr. Godfrey Saga (EASTC) presented on training environment statisticians at EASTC in support of the FDES. This presentation included what, how and why environment statistics are taught at EASTC, assessment methods, challenges of trainers and a request for comments from Workshop participants.

110. Mr. Brian Musaga (SSP, Makerere University) presented on the role of the School of Statistics and Planning in implementation of the FDES. His presentation included background information on SSP, its departments and programmes, the teaching of environment statistics, open thoughts on the FDES, and SSP's research and needs.

111. Mr. Wilson Chizebuka (COMESA) presented on the Roadmap for FDES. This presentation included information on COMESA's assessment of environment statistics in member states, the development of a roadmap for FDES implementation, and the council of ministers' endorsement of the roadmap.

112. Mr. Wilson Chizebuka (COMESA) further made a presentation on COMESA's funding window under the regional integration support mechanism (RISM). This presentation included information on how countries can participate in RISM fund for budget and project based support under RISM resources, and action required by member states to access the funds.

Discussion:
113. Participants discussed and were generally very supportive of the idea of there being EAC regional and national applications of the FDES. Such documents would obviously utilise the FDES Basic and Core Sets of Environment Statistics as their starting point. It was mentioned that this would be a very strategic exercise requiring work between countries, sub-regional organisations (such as the EAC) and UNSD. If achievable, EAC regional Basic and Core Sets would preferably be utilised to strengthen the national level Basic and Core Sets. It was stressed that it is important to build ownership at the national level so as to help inform policy making at this level. If regional and national Basic and Core Sets are to be realised, it would be strongly preferred to make them available on common platforms. UNSD expressed their support for this idea and mentioned that other countries have developed their own applications of the FDES (for example, Qatar).

114. On training services at the EASTC, information was shared regarding Bachelor and Master programmes as well as on supply and demand driven short courses. The delegate from the EASTC mentioned the possibility of training environment statisticians in support of the FDES and that there is potential for overlap with the institute's Bachelor and Master level programmes. Such programmes place an emphasis on learning by doing, and less emphasis on theoretical perspectives. It was also mentioned that EASTC needs lecturers to assist in the teaching and that GIS is missing and should be incorporated.

115. Participants expressed the ever increasing importance and relevance of incorporating GIS into the training of environment statistics programmes, and how GIS is of great relevance to sourcing data required in the FDES' Basic and Core Sets of Environment Statistics.

116. The resource person shared the idea of increased attention being given toward a new concept of environmetrics by The International Environmetrics Society (TIES). This discipline combines research on environment with statistics.

117. The delegate from the School of Statistics and Planning, Makerere University, told of his university's application of the FDES in the 2013-14 academic year where students have collected data on various statistics within the FDES' first five components. To his experience, study tours have helped students to bridge gaps between theory and practice. He also emphasized that, inter alia, further study tours, funding for a PhD programme in environment statistics, and a training of trainers workshop were necessary.

118. Participants commented on the obvious inevitability of there being increased attention to environment statistics in the post-2015 period once the SDGs are in place. Training of statisticians within NSOs will require further emphasis on environment statistics, and the delegate from UNEP expressed his willingness to collaborate with the two training institutes present as well as with UNSD.

119. The delegate from UNECA shared information regarding the success of training in agriculture statistics in Africa, and that in providing training on environment statistics, lessons could be learned from the approach taken by other training institutes in Africa as well as the African Development Bank.

120. Regarding COMESA's funding mechanism, RISM, the delegate from COMESA expressed preference for countries to provide their own targets and indicators and to show a meeting of commitments to then allow COMESA to assess the possibility of providing funding via RISM. The delegate from COMESA also expressed COMESA's willingness to collaborate with Directors of NSOs to discuss funding possibilities.

Session 13: Toward a Regional Programme of Environment Statistics

121. In this session, two presentations were delivered on: Recommendations for the implementation of the FDES in EAC Partner states (EAC); and Further follow-up activities of the DA project (UNSD).

122. Mr. Robert Maate (EAC) presented on recommendations for the implementation of the FDES in EAC Partner states.

Ms. Reena Shah (UNSD) presented on further follow-up activities of the DA project which include technical assistance to the five participating countries to strengthen their production of selected environment statistics series and/or indicators by organizing technical assistance missions and providing remote technical support, as well as another sub-regional workshop to share progress and lessons learned.

Discussion:
123. The EAC explained that their structure of decision making with expert contributions involves a statistics committee where recommendations reached from this Workshop are channelled to the council of Ministers. Outcomes and decisions then become binding to countries which enhances prospects of implementing the decisions.

124. The EAC presented draft proposed recommendations which required enrichment from those present in the Workshop. The plenary most willingly provided contributions to enrich the proposals.

125. Regarding the recommendations (stated below), the EAC mentioned the existence of technical working groups at the EAC on issues such as climate change and water where representatives may come from a Ministry of Water or an NSO. However, it remains vital to establish an EAC working group with particular emphasis on environment statistics. The EAC

expressed that in most cases, it is the role of a country's NSO to serve as a national coordinator.

126. Further regarding the recommendations, UNSD agreed to make available a refined ESSAT (both parts I and II) by mid-August with the understanding that countries present will begin applying it by September. The importance of recommendation 2 is to make colleagues from NSOs, Ministries of Environment and other offices aware of the state of play of environment statistics.

127. UNSD and the EAC expressed their strong alignment and agreement in supporting the recommendations reached at this Workshop. It was noted that the adoption of a Core Set of Environment Statistics tailored to this sub-region would be very much supported. UNSD stressed that part of its DA project activity is to provide technical assistance to countries. In the meantime, UNSD is working on methodology sheets which shall further assist countries in compiling statistics from the Core and Basic Sets of Environment Statistics. Following this, EAC is looking forward to the opportunity for another sub-regional Workshop with EAC Partner states, resources permitting in 2016, in order to agree on an EAC Core Set of Environment Statistics.

128. Participants made the point that the recommendations should be time-bound and that all must make great effort to enact agreed recommendations with agreed time frames in mind.

129. Participants expressed agreement at the importance of involving NSOs, Ministries of Environment and possibly other line Ministries in working groups. Another participant suggested that interested parties including prospective donors may be invited to participate in working groups with an observer status only. It was further observed that although observers are welcome, for an EAC working group, it is very important that the EAC have control so as to be able to ensure agencies are in a position to follow up on decisions made by the group.

130. Pertinent to the second recommendation, one participant expressed the importance of focussing on data producers in the initial stage. The participant meant that we should be mindful of ensuring that when users of data are involved in a forum, it should be that data producers have relevant information to share with them. Otherwise, such a forum risks losing the interest and participation of the data users.

131. UNSD stressed the importance of those present at this Workshop being in a position to share information learned with colleagues in their home countries, especially in light of recommendations 2 and 3, and that it is highly likely that those present at this Workshop shall be participants in or leaders of national working groups and shall also apply the ESSAT at the national level.

Recommendations from the Workshop

132. After most positive discussions, the following Recommendations were agreed upon by the plenary:

1) EAC to establish an EAC working group on environment statistics by October 2015. The Working Group should be composed of the ministry responsible for environment and the NSO in each Partner State.
2) Partner States to establish national working groups on environment statistics comprising of data producers and suppliers by October 2015. The working groups should regularly engage with the data users. The working groups will, inter alia, domesticate the FDES.
3) Partner States to apply the ESSAT (Parts I and II) at the national level by November 2015.
4) UNSD in collaboration with the EAC Secretariat to identify the core set of environmental indicators to support national and regional policy making, the production of core statistics for the FDES and the Sustainable Development Goal indicators by May 2016.
5) Partner States to develop national work plans for the production of environment statistics by August 2016.
6) The EAC Secretariat in collaboration with Partner States to produce a regional compendium containing concepts and definitions on environment statistics by December 2016.
7) Partner States to produce national publications on environment statistics by December 2017.
8) The EAC Secretariat to compile a regional environment statistics publication by December 2017.
9) The EAC Partner States to incorporate the FDES work plan into their National Strategies for the Development of Statistics and this will guarantee funding and hence sustainability of the FDES programme.
10) In support of the FDES, environment statistics training programmes are currently undertaken at the Eastern Africa Statistical Training Centre (EASTC) at Bachelor's and Master's level, as well as at the School of Statistics and Planning, Makerere University. Furthermore, environment statistics as a cross-cutting field of statistics, requires trainers who are practitioners within national statistical systems, and who are well equipped with a theoretical background as well as hands-on experience. Most statistical training centres in Africa, including EASTC, lack qualified lecturers in environment statistics; therefore UNSD is requested to assist in terms of identifying experienced and qualified environmental statisticians to train at EASTC.

Closing Remarks

133. The EAC expressed gratitude to all members of the Workshop for their commitment, and wished for progress to continue in the same spirit. The EAC looks forward to fruitful results and harmonised statistics across national and regional levels which are not in conflict with one another. The EAC gave their promise to forward this information along to higher levels within the EAC Secretariat.

134. UNSD expressed thanks to fellow collaborating organisations of this Workshop, namely, the EAC and the NBS, Tanzania. UNSD was most grateful to participants for their efforts

throughout the week in what is a challenging area of statistics. UNSD looks forward to continue working with countries and the EAC to move forward this important agenda.

135. The NBS, Tanzania expressed gratitude to all for attending and participating, and expressed pleasure at being the host country for such an important Workshop.

Annex 1

List of Participants

COUNTRIES

BURUNDI

Mr. François Vyizigiro
Cadre
Institute of Statistics and Economic Studies,
Burundi (ISTEEBU)
B.P. 1156
Bujumbura, Burundi
Tel: + 257 79 583 014
Fax: +257 2222 2635
E-mail: fvyizigiro@gmail.com

Mr. Feruzi Mohamed
Director General
Burundian Office for Environment Protection
(OBPE)
Bujumbura, Burundi
Tel: +257 77 765 861
        +257 79 972 218
E-mail: inecndg@yahoo.fr
            Mohferu2008@yahoo.fr

KENYA

Ms. Mary Mildred Wanyonyi
Senior Manager
Kenya National Bureau of Statistics
P.O. Box 30266-00100
Nairobi, Kenya
Tel: + 254 20 334 0929
        +254 721 427641
Fax: +254 20 331 5977
E-mail: mwanyonyi@knbs.or.ke
            mmildredcbs@yahoo.com

Mr. Anthony Nyotu Mugane
Ministry of Environment, Water and Natural
Resources
State Department of Environment and Natural
Resources
NHIF Building, 13th floor, rm 1315
P.O. Box 30126-00100
Nairobi, Kenya
Tel: +254 722 665 691
E-mail: muganean@gmail.com

RWANDA

Mr. Jean Niyigaba
Environment and Forestry Statistician
National Institute of Statistics of Rwanda (NISR)
P.O. Box 6139
Kigali, Rwanda
Tel: + 250 788 415 622
E-mail: jean.niyigaba@statistics.gov.rw
            niyigav@yahoo.fr

Mr. Habimana Emmanuel
Statistician
Rwanda Environment Management Authority
P.O. Box 7436
Kigali, Rwanda
Mob: + 250 788 551 262
E-mail: ehabimana@rema.gov.rw
            emmanuelbareke@yahoo.fr

UGANDA

Mr. Emmanuel Menyha
Senior Statistician – Environment Statistics
Uganda Bureau of Statistics
P.O. Box 7186
Plot 9, Colville Street
Kampala, Uganda
Tel: + 256 771 706 094
Mob: +256 772 889 554
Fax: + 256 414 237 553
E-mail: emenyha@gmail.com

UNITED REPUBLIC OF TANZANIA

Dr. Albina A. Chuwa
Director General
National Bureau of Statistics
18 Kivukoni Front Road
P.O. Box 796
11992 Dar es Salaam, Tanzania
Mob: +255 783 101 101
       +255 784 581 101
E-mail: dg@nbs.go.tz
        albina.chuwa@nbs.go.tz

Ms. Margaret Mutaleba Martin
Regional Statistical Manager
National Bureau of Statistics
P.O. Box 7174
Arusha, Tanzania
Mob: +255 755 373 111
E-mail: mmmartin.martin3@gmail.com

Mr. Stephen Nelson Maganda
Principal Statistician
National Bureau of Statistics
18 Kivukoni Front Road
P.O. Box 796
11992 Dar es Salaam, Tanzania
Tel: + 255 222 122 722/3
Mob: +255 713 442 252
E-mail: stephen.maganda@nbs.go.tz

Ms. Donata Kemirembe Ponsian
Agricultural Research Officer
Vice President's Office
Dar es Salaam, Tanzania
Tel: + 255 715 362 229
E-mail: doniwa2011@gmail.com

Mr. Edgar Matola
Statistician
National Bureau of Statistics
P.O. Box 7174
Arusha, Tanzania
Tel: +255 755 444 445
E-mail: eddy_86jm@outlook.com

Mr. Kennedy Edward Mabogo
National Bureau of Statistics
P.O. Box 7174
Arusha, Tanzania
Tel: +255 762 251 693
E-mail: kenneditoedward@gmail.com

Mr. Mkama Dionizi
Water Sewerage Engineer
Arusha Urban Water and Supply and Sanitation
Authority (AUWSA)
P.O. Box 13600
Arusha, Tanzania
Tel: +255 754 678 822
E-mail: mkamadionizi@yahoo.com

AGENCIES

UNITED NATIONS STATISTICS DIVISION (UNSD)

Ms. Reena Shah
Chief
Environment Statistics Section
United Nations Statistics Division
2 UN Plaza, Room DC2-1416
East 44th Street
New York, NY 10017
USA
Tel: +1 (212) 963-4586
Fax: +1 (212) 963-0623
E-mail: shahr@un.org

Mr. Marcus Newbury
Statistician
Environment Statistics Section
United Nations Statistics Division
2 UN Plaza, Room DC2-1412
East 44th Street
New York, NY 10017
USA
Tel: +1 (212) 963-0092
Fax: +1 (212) 963-0623
E-mail: newbury@un.org

EAST AFRICAN COMMUNITY (EAC)

Mr. Robert Maate
Manager, Statistics Department
EAC Secretariat
P.O. Box 1096
Arusha, Tanzania
Tel: +255 787 097 022
E-mail: rmaate@eachq.org

Mr. Lubili Marco Gambamala
Statistics Expert, Statistics Department
EAC Secretariat
P.O. Box 1096
Arusha, Tanzania
Tel: +255 784 625 394
E-mail: mgambamala@eachq.org

Mrs. Nadine Bizimana
Administrative Assistant, Statistics Department
EAC Secretariat
P.O. Box 1096
Arusha, Tanzania
Tel: +255 755 240 066
E-mail: nbizimana@eachq.org

COMMON MARKET FOR EASTERN AND SOUTHERN AFRICA (COMESA)

Mr. Wilson Chizebuka
Data Programmer
COMESA Secretariat
Ben Bella Road
P.O. Box 30051
Lusaka, Zambia
Tel: + 260 211 229725/6/7/8 ext.7616
E-mail: WChizebuka@comesa.int

EASTERN AFRICA STATISTICAL TRAINING CENTRE

Prof. Innocent Ngalinda
Rector
Eastern Africa Statistical Training Centre
P.O. Box 35103
Dar es Salaam, Tanzania
Tel: +255 784 784 219
E-mail: info@eastc.ac.tz

Mr. Godfrey Saga
Assistant Lecturer
Eastern Africa Statistical Training Centre
P.O. Box 35103
Dar es Salaam, Tanzania
Mob: +255 717 067 873
E-mail: godfrey.saga@eastc.ac.tz

SCHOOL OF STATISTICS AND PLANNING, MAKERERE UNIVERSITY

Mr. Brian Musaga
School of Statistics and Planning
Makerere University
P.O. Box 7062
Kampala, Uganda
Tel: + 256 701 620 768
Mob : +256 779 620 768
E-mail: bmusaga@gmail.com
        bmusaga@bams.mak.ac.ug

UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA (UNECA)

Mr. Greg Xiaoning Gong
Chief, Economic Statistics and National
Accounts Section
UNECA
Addis Ababa, Ethiopia
Tel: + 251 11 544 5425
Fax: + 251 115 510 389
E-mail: xgong@uneca.org

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

Mr. Frank Turyatunga
Regional Coordinator, Africa (Assessment and
Early Warning)
UNEP
New Office Facility, Block 2, Ground Floor,
South
P.O. Box 47074-00100
Nairobi, Kenya
Tel : +254 (20) 762 5058
Mob: +254 716 431783
E-mail : Frank.Turyatunga@unep.org

RESOURCE PERSON

Mr. Anand Sookun
Individual Freelance Consultant and
Member of the Expert Group on the FDES
Royal Road
Saint Julien D'Hotman
Mauritius
Tel: + 230 4167513
E-mail: asookun@gmail.com

Annex 2

Monday, 6 July 2015

8:00-9:00 **Registration of participants**

9:00-9:30 **Opening of the workshop**
- National Bureau of Statistics - Tanzania
- East African Community (EAC)
- United Nations Statistics Division (UNSD)
- Eastern Africa Statistical Training Centre (EASTC)

9:30-10:00 **Objectives and organization of the workshop in the context of the Development Account project**
- Overview of the Development Account project on: Supporting Member States in Developing and Strengthening Environment Statistics and Integrated Environmental-economic Accounting for Improved Monitoring of Sustainable Development (UNSD)
- Presentation and adoption of agenda
- Introduction of participants

10:00-10:20 *Coffee break*

10:20-12:00 **Session 1: Need for and use of environmental statistics and indicators**
- Regional needs
  - Regional activities in environment statistics (EAC)
  - Need for and use of environmental statistics and indicators (UNECA)
  - UNEP's perspective on regional needs (UNEP)
  - Justification for environment statistics and indicators in COMESA (COMESA)
- International requirements for environmental statistics and indicators (UNSD)
- International data sources for environment statistics (UNSD)
- Strengthening environment statistics for monitoring the Sustainable Development Goals (SDGs) (UNSD)

12:00-13:00 *Lunch*

13:00-14:30 **Session 2: National presentations on the state of environment statistics; other countries' experiences with the FDES**
- Country presentations
  - State of the environment Burundi (Burundi)
  - Environment statistics in Kenya (Kenya)
  - Presentation on the status of Rwandan environment statistics (Rwanda)
  - Present state of environment statistics in Uganda (Uganda)
  - Environment situation in Tanzania (Tanzania)
- The use and application of the FDES at the national level (UNSD)

14:30-16:00   **Session 3: Overview of environment statistics**
- FDES Chapter 1: Overview of environment statistics – characteristics and challenges. FDES (UNSD)
- The use of GIS and remote sensing for environment statistics (Resource person)
- Discussion

15:00-15:20   Coffee break

16:00-17:00   **Session 4: The FDES and the Basic/Core Sets of Environment Statistics (FDES Chapters 2 and 4) (UNSD)**
- Chapter 2: Conceptual foundation and structure of the FDES (UNSD)
- Chapter 4: From the Basic to the Core Set of Environment Statistics (UNSD)
- Manual on the Basic Set of Environment Statistics (UNSD)

Tuesday, 7 July 2015

8:30-9:15   **Session 5: The Environment Statistics Self-Assessment Tool (ESSAT)**
- The ESSAT (UNSD)
- Discussion

9:15-11:30   **Session 6: FDES, Component 1: Environmental Conditions and Quality**
- Component 1 and its sub-components and statistical topics (UNSD)
- Land cover and land use in environment statistics (Resource person)
- Discussion

10:00-10:20   *Coffee break*

11:30-14:30   **Group work on Component 1 using the ESSAT**

12:00-13:00   *Lunch*

14:30-15:00   **Presentation back to plenary**

15:00-15:20   *Coffee break*

15:20-17:00   **Session 7: FDES, Component 2: Environmental Resources and their Use**
- Component 2 and its sub-components and statistical topics (UNSD)
- Discussion

Wednesday, 8 July 2015

8:30-10:50   **Group work on Component 2 using the ESSAT**

10:00-10:20   *Coffee break*

10:50-11:20   **Presentation back to plenary**

11:20-13:00   **Session 8: FDES Component 3: Residuals**
- Component 3 and its sub-components and statistical topics (UNSD)
- Climate change and greenhouse gases (Resource person)
- Overview of the Arusha Urban Water Supply and Sanitation Authority (AUWSA)
- Discussion

13:00-14:00   *Lunch*

14:00-17:00   **Excursion to:**
- East African Community Headquarters
- Banana Investments Ltd. (wastewater treatment plant)
- Arusha Urban Water Supply and Sanitation Authority (AUWSA)

Thursday, 9 July 2015

8:30-10:20   **Group work on Component 3 using the ESSAT**

10:20-10:40   *Coffee break*

10:40-11:10   **Presentation back to plenary**

11:10-12:00   **Session 9: FDES Component 4: Extreme Events and Disasters**
- Component 4 and its sub-components and statistical topics (UNSD)
- Discussion

12:00-13:00   *Lunch*

13:00-14:15   **Group work on Component 4 using the ESSAT**

14:15-14:45   **Presentation back to plenary**

14:45-15:20   **Session 10: FDES Component 5: Human Settlements and Environmental Health**
- Component 5 and its sub-components and statistical topics (UNSD)
- Discussion

15:20-15:40   *Coffee break*

15:40-17:00   **Group work on Component 5 using the ESSAT**

Friday, 10 July 2015

8:30-9:00 **Presentation back to plenary**

9:00-9:45 **Session 11: FDES Component 6: Environment Protection, Management and Engagement**
- Component 6 and its sub-components and statistical topics (UNSD)
- Discussion

9:45-11:30 **Group work on Component 6 using the ESSAT**

10:00-10:20 *Coffee break*

11:30-12:00 **Presentation back to plenary**

12:00-13:00 *Lunch*

13:00-14:00 **Session 12: Training needs and the implementation of the FDES 2013**
- Putting the FDES to work: a Blueprint for Action (UNSD)
- Training environment statisticians at EASTC in support of the FDES (EASTC)
- Role of the School of Statistics and Planning (SSP) in implementation of the FDES (SSP, Makerere University)
- Roadmap for FDES (COMESA)
- Funding window under Regional Integration Support Mechanism (RISM)(COMESA)

14:00-15:10 **Session 13: Toward a regional programme of environment statistics**
- Recommendations for the implementation of the FDES in EAC member states (EAC)
- Further follow-up activities of the Development Account project (UNSD)

15:10-15:30 *Coffee break*

15:30-16:15 **Closing remarks**
- EAC
- UNSD

16:15-16:30 **Evaluation**

Annex 3

Groups

Group 1

Participant	Country
Ms. Mary Mildred Wanyonyi	Kenya
Mr. Anthony Nyotu Mugane	Kenya
Mr. Emmanuel Menyha	Uganda
Mr. Stephen Nelson Maganda	Tanzania
Ms. Donata Kemirembe Ponsian	Tanzania
Mr. Godfrey Saga	Eastern Africa Statistical Training Centre
Mr. Brian Musaga	School of Statistics and Planning, Makerere University

Group 2

Participant	Country
Mr. François Vyizigiro	Burundi
Mr. Feruzi Mohamed	Burundi
Mr. Jean Niyigaba	Rwanda
Mr. Habimana Emmanuel	Rwanda