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REGIONAL CENTRE FOR MAPPING OF RESOURCES FOR DEVELOPMENT

(formerly: Regional Centre for Services in Surveying Mapping
and Remote Sensing)

REPORT OF THE TRAINING COURSE ON PLANNING THE INDUSTRIAL SITING IN AFRICAN URBAN AREAS

22nd - 26th JUNE 1998
NAIROBI, KENYA



COUNTRIES SERVED BY THE CENTRE

REPORT OF THE TRAINING COURSE:
'PLANNING OF THE INDUSTRIAL SITING IN AFRICAN URBAN AREAS'

22-26 JUNE 1998

NAIROBI - KENYA

ORGANIZED JOINTLY BY:

INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY (ICS)
TRIESTE, ITALY

AND

REGIONAL CENTRE FOR SERVICES IN SURVEYING, MAPPING AND
REMOTE SENSING (RCSSMRS)
NAIROBI, KENYA

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1. ORGANIZATION OF THE COURSE

- Title : Planning the Industrial Siting in African Urban Areas
- Dates : 22nd -26th June, 1998
- Organizers: Prof. Simon Ndyetabula, Director General (RCSSMRS), Nairobi, Kenya and Mr. Luka Isavwa, Director Remote Sensing, RCSSMRS, Nairobi, Kenya
- Prof. Enrico Feoli, ICS
Trieste, Italy
- Funding : United Nations Industrial Development Organization (UNIDO)
- Purpose : The course was organized by ICS in order to support technically the project proposal of the Government of Kenya on environmental problems of industrial development in Nairobi and to open a regional forum of discussion for all the countries of Eastern Africa with similar problems.

2. OBJECTIVES OF THE COURSE

Following a workshop held in Trieste, Italy in March 1998, and which was organized and hosted by ICS-UNIDO, it was decided to hold a follow up course in Nairobi to expound on preparations of a project proposal on planning industrial siting in African Urban Areas.

The main development objectives of the course was to acquire the technological tools for assisting the Government of Kenya and the Nairobi City Council to develop consistent policies and strategies useful for improving the sustainability of industrial development.

The course was also used to introduce the techniques of decision support systems to participants from other invited countries in the region.

The immediate objectives were:

- To develop a long term strategic framework for regulating the industrial development in East Africa by analyzing and discussing as a case study the industrial peri-urban areas of Nairobi City in Kenya.

- . To promote an environmental plan for pollution control, reduction clean-up and waste handling and environmental services.
- . To develop a specific strategy for addressing the immediate environmental problems created by transportation and manufacturing industries in urban areas of East Africa.

For more details including the outputs expected of the course please see the Aid-memoire of the course in Annex I.

3. COURSE PROGRAMME

3.1 Opening Session

Address by the Director General of the RCSSMRS, Nairobi, Kenya

A welcome address on behalf of the Governing Council and the staff of the Centre to the participants and distinguished guests was given by Prof. Simon Ndyetabula, the Director General, RCSSMRS, Nairobi, Kenya.

He pointed out the importance of the course in the environmental development of industrial siting of the East Africa cities. The training course should be used to deliberate on preliminary initiatives directed at addressing the environmental problems caused by lack of effective instruments for regulating the industrial sitings in African Urban areas.
For details see ANNEX II.

Address by Prof. Enrico Feoli, ICS-UNIDO, Trieste, Italy

In his address, Prof. Feoli praised the cooperation between the Centre and ICS-UNIDO at Trieste, Italy. It was due to the cooperation with the personnel of the Regional Centre that it was possible to hold the follow up of the course held in Trieste, Italy from 23rd to 31st March, 1998 in order to concentrate on specific study of industrial area of Nairobi.

Prof. Feoli reiterated the importance of the course which was to encourage the development of projects which lead to provision of appropriate decision support systems for the management of environmental pollution due to industrial siting and development in African country.

3.2 Training Sessions

The training course was organized so as to include lectures, demonstration and exercises by specialists on the following subjects:

- . industrial processes and pollutions;
- . remote sensing (satellite and data acquisitions, instrumentation, correction techniques, spatial resolution measurements;
- . sampling techniques and data analysis (multivariate and spatial data analysis) by GIS and Image processing techniques.

The Regional Centre for Services in Surveying, Mapping and Remote Sensing (RCSSMRS), Nairobi, Kenya presented applications of these techniques about Nairobi industrial area.

The RCSSMRS also identified and selected local specialists who provided case studies about Nairobi.

The topics that were covered encouraged the interaction of ideas by the participants through comments and discussions.

A field trip was organized which included a tour of the Nairobi industrial areas and its environs. The participants witnessed the haphazard planning and siting of some industries. Many sites require clean industrial protection.

A list of lectures presented during the course is given in ANNEX VII.

The participants found the scientific programme very useful. The use of small working groups and case studies were found to be very good. The time spent by lecturers after classes on specific problems was balanced. The rest of the lectures were scientifically balanced.

During the course, a project proposal was presented by the Regional Centre entitled, "Urban, Air, Water and Solid Waste Pollution due to Industrial Development in Nairobi, Kenya." The project is to be presented to UNIDO for funding. In discussing project, all the participants endorsed the effort and urged ICS-UNIDO to accelerate the acceptance of the project when presented.

The details of the programme is in ANNEX III

3.3 Conclusions and Recommendations

3.3.1 Conclusions

After the detailed presentations and discussions, the following conclusions were made:-

- (i) All the participants found the course well organized right from the time they started receiving information about the course. They found the course scientifically sound and the students knowledge was balanced and enjoyed the lectures.
- (ii) The participants found the duration of the course just right. Also the length of the working day was adequate.
- (iii) The training facilities and hotel accommodation were found to be satisfactory.
- (iv) All the participants undertook to recommend to their national colleagues to attend such courses in future.
- (v) The Centre should regularly organize such courses for the benefit of the region.

3.3.2 Recommendations

Recommendations were suggested at three levels namely; national, regional and international. These were as follows:-

a) At National Level

- (i) Countries of East Africa should develop reliable data bases concerning industrial development in order to encourage equitable sustainable development.
- (ii) Most of the cities should forge ahead in the use of new and advanced technologies such as Geographic Information Systems (GIS) as a tool for Decision Support Systems.
- (iii) Networking among similar institutions should be undertaken in order to accelerate decision making and avoid duplication and render it cost effective.

(iv) GIS techniques concerning industrial pollution and environmental management should be encouraged and regular courses be mounted at the Regional Centre.

b) At Regional Level

- (i) The Regional Centre for Services in Surveying, Mapping and Remote Sensing should be strengthened in the field of environmental assessment and management in order to be able to disseminate the required data on industrial and pollution to the East African countries.
- (ii) The participants supported the development of the Project on Urban, Air, Water and Solid Waste Pollution due to Industrial Development in Nairobi, Kenya. In so doing, they requested ICS-UNIDO to ensure the establishment of the project at the Centre.
- (iii) Training of participants from the East African countries in the fields of IPS, GIS, RS and DSS should be encouraged and supported.
- (iv) Countries of East Africa should develop guidelines at regional level in order to encourage and accelerate sustainable rural development.

c) At International Level

- (i) Developed nations should encourage transfer of suitable and appropriate tools and strategies in GIS technology and sell them to administration and decision-makers.
- (ii) UNIDO should earmark and support the RCSSMRS and other similar institutions in East Africa to become focal points to cooperate with ICS and its network.

At the end of the course, a detailed evaluation was carried out by the participants and the results appear in Annex V. On the whole, the participants found the course very useful.

3.4 Closure of the Course

In their closing remarks, the Director General of the Regional Centre and Professor E. Feoli, emphasized the importance of proper planning and siting of industrial areas in African Urban Areas. They reiterated the use of new techniques to assist in information collection and manipulation leading to informed decisions related to African Industrial areas.

4. FUNDING AND EXPENDITURE FOR THE COURSE

The total budget for the training course was US\$28,000.00 (Twenty eight thousand dollars only). A total of about US\$27,134.00 (Twenty seven thousand one hundred and thirty four only) was used.

There was over expenditure on a number of items. However, the over expenditure was covered by the under expenditure from airtickets and accommodation items.

The financial assistance was adequate for the duration of the training course. It is hoped that a similar course can be organized for decision makers from the East Africa countries.

For details of funding and expenditure see ANNEX VI

5. PARTICIPATION

Twenty one (21) participants attended the course distributed from the following countries of Eastern Africa:

Ethiopia	-	2
Kenya	-	5
Sudan	-	2
Tanzania	-	3
Uganda	-	1
RCSSMRS	-	7
Other	-	<u>1</u>
		21

A total of 9 resource persons participated.

The final list of participants is attached in ANNEX IVA. A list of all the resource persons is also appended in ANNEX IVB.

6. ACKNOWLEDGEMENTS

The Regional Centre for Services in Surveying, Mapping and Remote Sensing is very grateful for the financial assistance UNIDO extended to the RCSSMRS for the accomplishment of the training course.

The RCSSMRS is also grateful for the cooperation and encouragement it received from ICS-UNIDO, Trieste, Italy.

ANNEX I

ICS

International Centre for Science and High Technology

Regional Centre for Services in Surveying Mapping and Remote
Sensing (RCSSMRS)

AIDE-MEMOIRE

Training Course on 'Planning the Industrial Siting in African
Urban Areas'

22nd-26th June, 1998

Nairobi-Kenya

International Centre for Science and High Technology (ICS)
Area Science Park, Padriciano
99-Building L2
34012 Trieste, Italy

Tel: +39-40-9228107

Fax: +39-40-9228136

E-mail: feoli@sci.area.trieste.it

Regional Centre for Services in Surveying, Mapping
and Remote Sensing

P.O. Box 18118

Nairobi, Kenya

Tel: 254-2-803320-9

Fax: 254-2-802767

E-mail: regional.centre.gis.nairobi@unep.org

BACKGROUND

The objective of ICS Subprogramme 2.1 (Decision Support Systems for Sustainable Industrial Development) is to strengthen the decision making process at policy/regulatory level in developing countries related to the formulation and implementation of national or sub-national (area-wide) policies, strategies and action plans for sustainable industrial development. ICS-UNIDO seeks to address the problem by transferring to Developing Countries suitable technology such as Geographic Information System, Remote Sensing and Image Processing, that can help to improve the decision making within the explicit domain of industrial development and environmental management.

In most countries of Africa the environmental situation of the industrial areas situated in urban and peri-urban areas is critical for many reasons that are all consequent to lack of development plans. The siting of industries appears to follow a random pattern that does not consider the available infrastructures, the allocation of water resources and the prevention of pollution of water, soil and air.

Strategic plans have to be developed in order to improve the plant allocation within industrial areas in such a way to optimize the land use, the transportation system, the water use and the waste treatment. This is the only way, beside that of improving the technology of production that limits pollution and environmental degradation.

JUSTIFICATION

The industrial area of Nairobi (Kenya) offers an example of urban and peri-urban areas undergoing a very fast process of degradation. The pollution of the urban and peri-urban water streams has reached unacceptable levels by any standard. It is for this reason that the Government of Kenya has submitted to UNIDO in 1997 a project proposal entitled "Environmental Impact Assessment of Air and Water Pollution due to Industrial Development in Nairobi, Kenya."

The main objective of the project is to acquire the technological tools for assisting the Government of Kenya and the Nairobi City Council to develop consistent policies and strategies useful for improving the sustainability of industrial development.

This training course is organized by ICS in order to support technically the project proposal of the Government of Kenya and to open a Regional forum of discussion for all the Countries of East Africa with similar problems. It is for this reason that the Training Course is organized in the Regional Centre for Services in Surveying, Mapping and Remote Sensing and in strict cooperation with the personnel of this regional centre.

The Course is following the one that was organized in Trieste from 23 to 31 March 1998, and will be concentrated on the specific case study of industrial area of Nairobi, the achievements of the Trieste course will be presented to key planners of the East Africa.

OBJECTIVES

- To develop a long-term strategic framework for regulating the industrial development in East Africa by analyzing and discussing as case study the industrial peri-urban areas of Nairobi.
- To promote an environmental plan for pollution control, reduction clean-up and waste handling and environmental services.
- To develop a specific strategy for addressing the immediate environmental problems created by transportation and manufacturing industries in urban areas of East Africa.

EXPECTED OUTPUTS

- Definition of the most urgent problems and relevant in-the-field intervention priorities in industrial areas of East Africa.
- Identification of the most advanced technologies and software to implement Decision Support Systems for industrial development.
- Identification of the most appropriate tools and strategies to transfer GIS technology to administration and decision-maker stakeholders in East Africa.
- Identification of the Centres of East Africa to be considered for inclusion as focal points in the ICS network.
- Consolidation of a network of East African institutions working in close contact with industry for planning a sustainable development and dealing with development projects funded by different donors.
- Training of participants in different technologies of IPS, RS and DSS.
- Guidelines for developing a regional project on industrial planning of urban and rural areas in East Africa keeping into consideration the rural development.

STRUCTURE OF THE TRAINING COURSE

The structure of the training course includes: lectures, demonstrations and exercises by specialists on the following subjects: industrial processes and pollution; remote sensing (satellite and data acquisition instrumentation, correction techniques, spatial resolution measurements); sampling techniques and data analysis (multivariate and spatial data analysis) by GIS and Image processing techniques. The Regional Centre for Services in Surveying, Mapping and Remote Sensing, Nairobi, Kenya will present applications of these technologies to Nairobi industrial area.

PARTICIPATION

The training course is directed to technologists, planners, decision makers, stakeholder who are working in close contact with Ministry of Industry or Environment or Planning in landscape assessment of industrialization of urban, peri-urban and rural areas of East Africa. Participation is by invitation. A maximum of 15 participants from East Africa will be admitted to the training course coming from Ethiopia, Kenya, Sudan, Tanzania, and Uganda. About four experts will be invited to lecture on specific topics.

TENTATIVE PROGRAMME

Monday, 22 June

09:00-09:30	Registration
09:30-10:00	Opening Ceremony
10:00-10:30	Coffee/Tea Break
10:30-11:00	Overview of Training Course
11:00-12:30	Presentation of the problems of the Nairobi Industrial Area concerning waste management, pollution and transportation (Dr. Samuel Obiero)
12:30-14:00	Lunch
14:00-15:30	Water Management (S.A. Anyango)
15:30-16:00	Coffee/Tea Break
16:00-17:00	Discussions on transportation issues Presentation of Industrial Ecology (Prof. E. Feoli)

Tuesday, 23 June

09:30-10:00	Remote Sensing General (L.A. Isavwa)
10:00-10:30	Coffee/Tea Break
10:30-12:30	In-situ Monitoring data (H.Namai and N. Ochanda)
12:30-14:00	Lunch
14:00-17:30	Discussion on Monitoring Systems Preparations for visit to Nairobi Industrial Area (L. Isavwa and N. Ochanda)

Wednesday, 24 June

Visit to Nairobi Industrial Areas

Thursday, 25 June

09:30-10:00	Presentation and discussion of Geographic Information Systems (GIS) (J. Agatsiva)
10:00-10:30	Coffee/Tea Break
10:30-12:30	Demonstration of Case Studies by GIS, RS and IPS to support the development of Decision Support Systems (DSS) (M. Nyabenge and M. Waweru) Image Processing Systems (A. Oroda)
12:30-14:00	Lunch
14:00-15:00	Internet Resources for RS and GIS (Alessandro Cimbelli)
15:00-15:30	Coffee/Tea Break
15:30-17:30	Discussion on the role of Industrial Siting for the Industrial Development (Prof. E. Feoli).

Friday, 26 June

08:30-10:00	Discussions on the Project "Environmental Impact Assessment of Air and Water Pollution due to Industrial Development in Nairobi, Kenya" (RCSSMRS/ICS-UNIDO).
10:00-10:30	Coffee/Tea Break
10:30-12:30	Continuation
12:30-14:00	Lunch
14:00-17:00	Closing

DOCUMENTATION

The documents available for the training course will be:

- 1) Aide-memoire of the training course
- 2) Programme and list of participants
- 3) Lecture notes, bibliography and copies of manual of exercises (for internal use only).
- 4) Case studies

LANGUAGE

The training course will be conducted in English and no translation facilities will be available. It is expected that the participants have a good command of English.

TIME AND VENUE

The training course will be held at the Regional Centre for Services in Surveying, Mapping and Remote Sensing. Participants will be staying at the International Centre for Insect Physiology and Ecology, ICIPE, P.O. Box 30772, Nairobi, Kenya. Tel: 254-2-802501 Fax: 254-2-803360 and board and lodging will be settled by organizers.

FINANCIAL ADMINISTRATIVE ARRANGEMENTS FOR UNIDO-ICS FINANCED PARTICIPANTS

For those who will be invited by UNIDO-ICS to participate in the training course, round-trip air-economy transportation from the airport of departure will be arranged and prepaid tickets issued where necessary.

A daily allowance to cover board and lodging will be provided upon arrival to Nairobi. Reservation will be made for all participants at the ICIPE.

The participants will be required to bear the following costs:

All expenses in their home country incidental to travel abroad, including expenditures for passport, visa and any other miscellaneous items. UNIDO-ICS will not assume responsibility for any of the following costs, which may be incurred by the participant while attending the meeting.

- (1) compensation for salary or related allowances during the period of the workshop;
- (2) any costs incurred with respect to insurance, medical bills and hospitalization fees;
- (3) compensation in the event of death, disability or illness;
- (4) loss or damage to personal property of participants while attending the workshop.

VISA ARRANGEMENTS

Participants are requested to arrange for their visa as early as possible at the Kenyan Embassy in their home country. In case of difficulties, please advise the contact person mentioned below.

CONTACT PERSONS

For additional information, please contact:

At ICS-UNIDO, Trieste, Italy
Mrs. Elisa s. de Roa, Earth Environmental and Marine Sciences and Technologies, ICS-UNIDO, Area Science Park, Padriciano 99, 34012, Trieste, Italy, Tel: +39-40-9228108, Fax: +39-40-9228136, E-mail: roa@sci.area.trieste.it.

At the RCSSMRS, Nairobi, Kenya
Prof. Simon Ndyetabula, Director General
Regional Centre for Services in Surveying, Mapping and Remote
Sensing, P.O. Box 18118, Nairobi, Kenya, Tel: +254-2-803320-9, Fax:
+254-2-802767, E-mail: regional.centre.gis.nairobi@unep.org

Further details about the training course and travel instructions
will be provided upon request.

ANNEX II

OPENING STATEMENT BY DIRECTOR GENERAL
RCSSMRS

Distinguished Guests
Dear Participants
Colleagues
Ladies and Gentlemen

I, on behalf of the Centre, wish to take this opportunity to welcome you all to the Centre. It is my sincere hope that you will have a happy stay for the whole time you will be here to discuss various issues on the importance of effective planning of Industrial Sitings in our urban centres. I also hope that you will find some time off your heavy schedule to tour our premises in order to acquaint yourselves with the activities of this Centre that are partly geared to the assessment of the industrial impact on the state of the environment and wholly aimed at facilitating the economic development of Africa.

The significance of this course need not be over-emphasized, looking at the environmental mess in which our african cities and other urban centres are. The haphazard siting of industries, demographic pressures, the growth of air pollution levels, etc. are common phenomena in african urban centres.

Our Centre feels obliged to participate in running this course for two reasons. Firstly, the premise of the course deliberations

falls within the Centre's field of activities. Secondly, the Centre being a regional institution is well placed to influence the decision makers and planners in many african countries in formulating appropriate policies to regulate the siting of industries in urban areas.

Let me end up my remarks with a sincere hope that you, as participants of this course, will examine the varied experience on industrial impact on environment that will be exchanged among yourselves and be able to come up with a realization of the intended objectives of the course.

With these remarks, ladies and gentlemen, it is my singular honour to declare this course open.

Thank you.

ANNEX III

PROGRAMME OF THE COURSE

Monday 22 June, 1998

0900-0930	Registration	
0930-1000	Opening Ceremony	
1000-1030	Coffee/Tea Break	
1030-1100	Overview of the Training	Feoli/RCSSMRS
1100-1230	Presentation of the problems of Nairobi Industrial Area concerning waste managements transportation	Obiero
1230-1400	Lunch	
1400-1530	Continuation	Obiero
1530-1600	Coffee/Tea Break	
1600-1730	Water Management	S. A. Anyango

Tuesday 23 June, 1998

0930-1000	Remote Sensing General	L.A. Isavwa
1000-1030	Coffee/Tea Break	
1030-1230	In-situ Monitoring data	Ochanda
1230-1400	Lunch Break	
1400-1730	Discussion on Monitoring Systems; Preparation for visit to Nairobi Industrial Area	

Wednesday 24 June, 1998

Visit to Nairobi Industrial Areas	Ochanda/RCSSMRS
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Thursday 25 June, 1998

0830-1000	Presentation and discussion of Geographic Information Systems (GIS)	J. Agatsiva
1000-1030	Coffee/Tea Break	
1030-1230	Demonstration of case studies by GIS, RS and IPS to support the development of Decision Support Systems (DSS)	M. Nyabenge M. Waweru A. Cimbelli
1230-1400	Lunch Break	
1400-1500	Image Processing Systems (IPS)	A. Oroda
1500-1530	Coffee/Tea Break	
1530-1730	Discussion on the role of Industrial Siting for the Industrial Development	Prof. Feoli

Friday 26 June, 1998

0830-1000	Presentation of Project "Environmental Impact Assessment of Air, Water and Waste Pollution due to Industrial Development in Nairobi, Kenya	RCSSMRS
1000-1030	Coffee/Tea Break	
1030-1230	General discussion, further demonstrations for drawing guide lines to develop DSS technical tools for supporting the industrial siting and development	RCSSMRS ICS-UNIDO Consultants
1230-1400	Lunch Break	
1400-1700	Discussions Continued	
1700	Closing of the Course	

ANNEX IV A

LIST OF COURSE PARTICIPANTS

NAME	PRESENT POSITION	ADDRESS
(1) LEGESSE TASHU (MR)	Head of Project Team	Min. of Trade & Industry P.O. Box 704 ADDIS ABABA Ethiopia Tel: (251) 1 511615
(2) AHMED HAG ELSHEIKH ABBO (MR)	Manager	Leather Industries Project, Sudanese Chambers of Industries P.O. Box 2565 KHARTOUM Sudan Tel: (249) 11471717 Fax: (249) 11 471720
(3) OSMAN ABDEL RAHIM OSMAN (MR)	Director	National Remote Sensing Centre P.O. Box 2404 KHARTOUM Sudan Tel: Off-(249) 11 770176 Res-466045 Fax: 770701
(4) ROBINAH L. SABANO (MS)	Senior Industrial Officer	Ministry of Trade & Industry P.O. Box 7103 KAMPALA Uganda Tel: (041) 255251/343947 Fax: (041) 347286

(5)

EMERENSIANA
S. KAYEGA (MRS)

Town Planner

Ministry of Lands
P.O. Box 20671
DAR ES SALAAM
Tanzania
Tel: (255) 51 121034

(6)

AUGUSTINE JUMA
CHILUMANGA (MR)

Principal Industrial
Economist

Ministry of Industry
& Commerce
P.O. Box 9503
DAR ES SALAAM
Tanzania
Tel: 180075/6, 180049/50
181397
Fax: 184727/113427

(7)

STEPHEN MADATA
KONGWA (MR)

Surveyor in-charge

Dar es Salaam City
Commission
Town Planning Dept.
P.O. Box 9084
DAR ES SALAAM
Tanzania
Tel: (051) 133034

(8)

CHODOTA M.W.L.

Senior Surveyor

RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel: 803320-9
861671

(9)

ZEIN A.O. SHARIF

Chief Cartographer

RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel: 803320-9
861672

(10)

JASPAT L. AGATSIVA Remote Sensing Officer

RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel: 803320-9
803856

(11)
AMBROSE ORODA

Project Officer

RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel:803320-9

(12)
MARYSTELLA BARASA
(MRS)

GIS Systems Analyst/
Programmer

Department of Resource
Surveys & Remote
Sensing (DRSRS)
P.O. Box 47146
NAIROBI
Kenya
Tel:502223
Fax:504777

(13)
DANIS OWILI
(MR)

Operations Manager
LACOTE (K) Ltd.

P.O. Box 63040
NAIROBI, Kenya
Tel: 582212
Fax: (254-2) 581387

(14)
ERASTUS N. KIMURI
(MR)

Senior Assistant
Director of Industries

P.O. Box 30418
NAIROBI
Kenya
T e l : 3 3 3 5 5 9
Ext.276/285
Fax: 217916

(15)
LUKE WASONGA OUMA

Lecturer

Kenyatta University
Geography Department
P.O. Box 43844
NAIROBI
Kenya
Tel: 810901/811622
Ext.57311/321
Fax: (02)811573

(16)
UMBERTO FRACASSI

Research Fellow

University of Florence
Dept. of Earth
Sciences
Via I. Naroi, 2
50132, FIRENZE
Italy
Tel: +3955243486
Fax: +3955241595

(17)

DR. WELLINGTON
N. WAMICHA

Chairman

Department of
Environmental Science
Kenyatta University
P.O. Box 43844
NAIROBI
Tel: 811622

(18)

ZERIHUN WOLDU

Associate
Professor

Addis Ababa University
Biology Department
P.O. Box 3434
ADDIS ABABA
Ethiopia
Tel: 251-1-114323
Fax: 552350

(19)

ANDU ALEM TEGEGNE

Business Development
Officer

RCSSMRS
P.O. Box 18118
NAIROBI, Kenya
Tel: 803320-9
Fax: 802767

(20)

CAROLINE ONYANGO

18118

Cartographic
Technician

RCSSMRS
P.O. BOX

NAIROBI, Kenya
Tel: 803320-9
Fax: 802767

(21)

CHRISTINE N.
WAMACHARI

GIS/Remote Sensing
Technician

RCSSMRS
P.O. BOX 18118
Tel: 803320-9
Fax: 802767

ANNEX IV B

LIST OF RESOURCE PERSONS

- (1)
PROF. ENRICO FEOLI Area Coordinator
Earth Environment
& Marine Sciences
& Technologies
ICS-UNIDO
TRIESTE
Italy
Tel: 040-9228109
Fax: 39409228136
- (2)
DR. SAMUEL OBIERO Chairman
University of Nairobi
Department of Urban &
Regional Planning
P.O. Box 30197
NAIROBI
Kenya
Tel: 254-2-724521
Ext. 202
- (3)
MR. STEPHEN
O. ANYANGO Lecturer
Kenya Water Institute
Ministry of Water
Resources
P.O. Box 60013
NAIROBI
Kenya
Tel: 505838
- (4)
MR. LUKA ISAVWA Director Remote
Sensing
RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel: 802230/9
Fax: 802767
- (5)
MR. NICHOLAS
OCHANDA Lecturer
University of Nairobi
Department of
Geography
Kikuyu Campus
P.O. Box 30197
NAIROBI
Kenya
Tel: 254-2-334244
Fax: 254-2-336885

(6)
JASPAT AGATSIVA Remote Sensing Officer RCSSMRS
P.O. Box 18118
NAIROBI
Kenya
Tel: 803320/9
Fax: 802767

(7)
ALLESSANDRO Electronic Engineer ICS-UNIDO
CIMBELLI TRIESTE
Italy
Tel: 040-9228109

(8)
MR. MESHACK NYABENGE GIS Expert/Surveyor Department of Resource
Surveys & Remote
Sensing
P.O. Box 47146
NAIROBI
Kenya
Tel: 502223
Fax: 504777

(9)
MISS MARGARET WAWERU Remote Sensing & Department of Resource
GIS Expert/Ecologist Surveys & Remote
Sensing
P.O. Box 47146
NAIROBI
Kenya
Tel: 502223
Fax: 504777

ANNEX V

DETAILED RESULTS OF COURSE EVALUATION

The course was attended by twenty one participants
Eleven participants participated in the evaluation.

The course was titled "ICS Course on Planning the Industrial Siting
in African Urban Areas in Nairobi, Kenya."

A. Organization

1. All the participants were informed about the course through their heads of Departments after receiving circular information from the Regional Centre for Services in Surveying, Mapping and Remote Sensing (RCSSMRS). They were later formally invited to attend the course by the ICS UNIDO, Trieste, Italy.

	<u>Excellent</u>	<u>V. Good</u>	<u>Good</u>	<u>Fair</u>
2. The information process was	63.64	27.27	9.09	
3. The announcement and pre-course material was	50.00	20.00	30.00	
4. I found the scientific programme	80;.00	20.00		
4.1 Applied lecture/workshop	72.73	27.27		
4.2 Use of small working groups	45.46	36.36	9.09	9.09
4.3 Case studies	27.27	54.55	18.18	
4.4 The time spent by lectures in class and after class on specific questions/examples	55.56	44.44		

	<u>Balanced</u>	<u>Unbalanced</u>		
4.5 Student scientific knowledge was	90.0			
B. Duration of the Programme	<u>Just right</u>	<u>Too long</u>	<u>Too short</u>	
1. Number of days	63.64	18.18	18.18	
2. Length of working days	54.55	45.45		
C. Training facilities and Hotel	<u>Excellent</u>	<u>V. good</u>	<u>Good</u>	<u>Fair</u>
1. Lecture/training rooms	27.27	63.64	9.09	
2. Breaks/refreshments	27.27	18.18	54.55	
3. Hotel accommodation	30.00	30.00	40.00	
4. Meals at Hotel		10.00	70.00	20.00
D. Organizers' response to participants' needs	72.73	27.27		
E. Overall programme organization	72.73	27.27		
F. Would you recommend to others from your institution/country to attend a similar activity in the future.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>	
	100	-	-	
G. Evaluation of lectures and speakers	<u>Excellent</u>	<u>V. good</u>	<u>Good</u>	<u>Fair</u>
1. Course material	45.45	45.45	9.10	
2. Resident Lecture presentation	63.64	36.36		
3. International lecture presentation	40.00	50.00	10.00	
4. Ability of lectures/answer specific questions	33.34	58.33	8.33	

OTHER RESPONSES WERE AS FOLLOWS:

1. Which part of the Activity did you find most useful?

Most of the participants found the process of developing environmental assessment and Decision Support Systems to be very important in industrial development.

The methodological development which was discussed provided a detailed insight in what is needed to be done.

Most of the participants stated that the entire workshop was quite useful to them and would like to develop workable Decision Support Systems for their own countries.

2. Which part of the activity do you think should be expanded?

Decision support system is a new approach which should be expended. Generally the participants noted the programme was adequate enough in context. Most of the participants need to become proficient in developing decision support systems. The use of GIS and remote sensing should be expanded.

3. Which part of the activity do you think should be dropped?

There were no responses to this question. This meant that the programme was totally useful.

4. Any other suggestions for future improvements to the programme?

Most participants felt that the programme should in the future be expanded to also include presentations from the individual countries represented in meetings.

They felt that the training programme was useful and should be carried on and implemented regularly.

Participants suggested that similar training programmes be undertaken in their countries. This training course should be made regular.

5. Do you think that the topics/tools you studied during the course could be used by industries in your country? If so, how? If not, why not?

Over 80% of the participants indicated that the topics they studied during the course could be used by industries in their respective countries especially for the monitoring and planning aspects for their industries.

They suggested that proposals be developed to implement the ideas and knowledge acquired.

Topics which require new methods of clean industrial production to be studied.

Also new methods of appraisal of environmental hazards and their mitigation.

6. Can you suggest any programme and future activities which ICS could pursue in order to help with the technological and scientific advancement of your country?

The development of the technological and scientific advancement was discussed and was strongly recommended that ICS should undertake this project.

The majority of the participants suggested that ICS could actively continue training members from individual countries to a level where they can become self-sustaining in industrial development matters.

ICS-UNIDO should assist in the setting up of Decision Support Systems (DSS) for industrial siting, management, assessment and monitoring of impacts of industrialization such as urban pollution due to industrial development in member countries of the Centre.

A project should be initiated to demonstrate the usefulness of DSS. Such a demonstrational project should be started and managed at the Regional Centre.

ICS-UNIDO was asked to support the project document being developed by the Centre on "Air, Water and Solid Waste Pollution due to Industrial Development in Nairobi, Kenya," to be presented to UNIDO for funding. The project will act as a focal point for similar projects in Eastern Africa.

7. Do you think you have benefitted from participation in this course/workshop? If so, how? And your Institution?

A very high percentage (nearly 100%) of the participants confirmed having benefitted from the course and hailed the selection of the resource persons whom they rated as

being well-versed with the topics they handled as well as having very good teaching materials.

The participants confirmed that they benefitted from the course by getting new ideas through interaction with fellow participants both from developed and developing countries. The forum allowed for the exchange of new ideas for planning and siting of industries.

Many member countries still use analogue assessment of industrial environment and could start using the new techniques taught in the workshop.

8. How do you intend to disseminate the information you have acquired during the activity once back in your own country?

Some participants stated that they participate directly in the planning process by being members of the planning committees and they could therefore disseminate the information gathered in this course through those committees.

Most participants indicated that they will write reports on the training course for circulation in their respective countries to the relevant organizations.

Most of the participants strongly suggested that similar courses be organized in their own countries.

The participants will strive to introduce GIS training in their departments so as to enhance the proficiency of the industrial workers.

ANNEX VI

EXPENDITURE SUMMARY

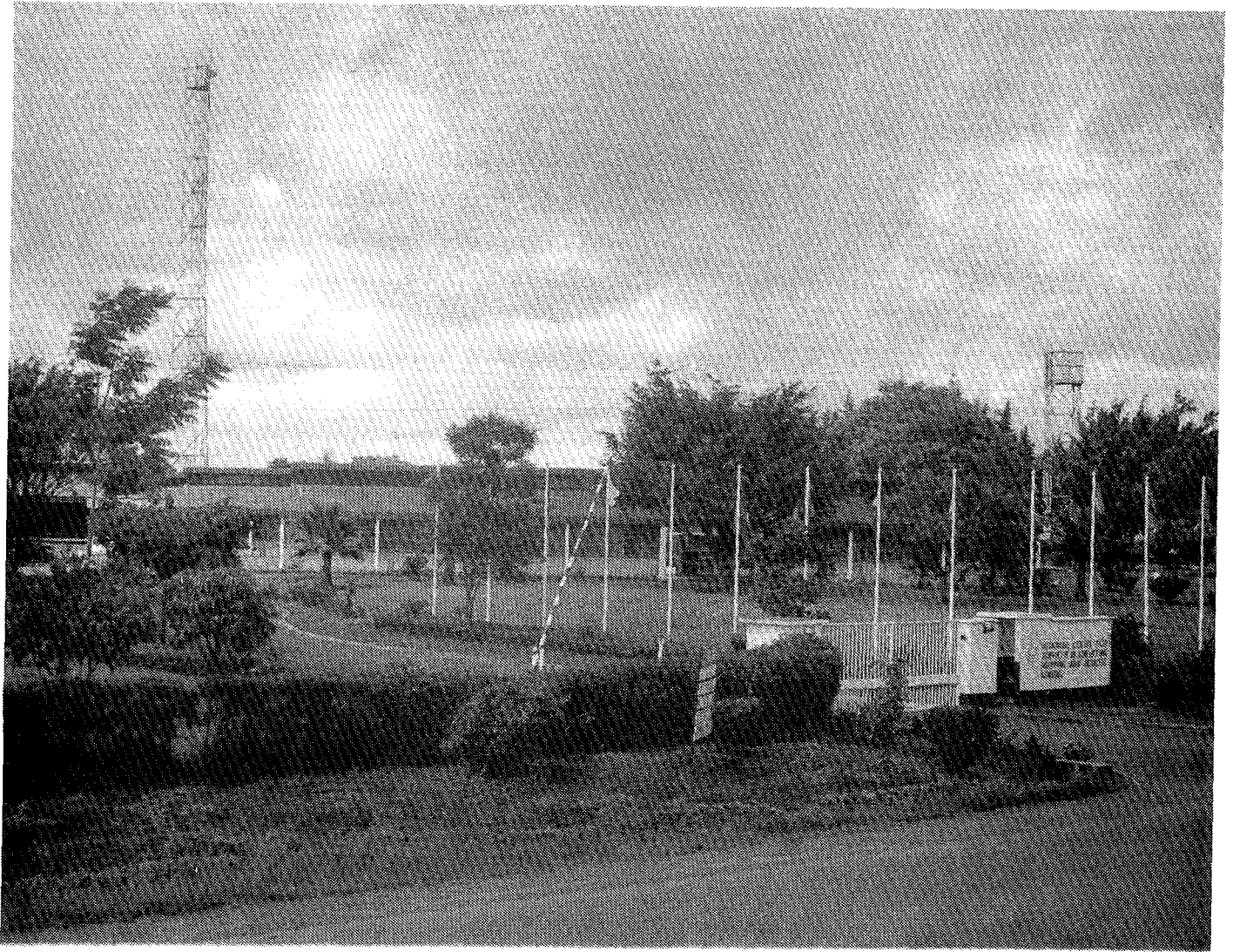
UNIDO Project TF/GLO/96/105-UNIDO Contract No.98/175
 Training Course "Planning the Industrial Siting in African Urban
 Areas", 22-26 June, 1998 Nairobi, Kenya

Item	Description	Actual US\$	Budget US\$
1.	Air tickets-Participants from: Sudan, Ethiopia, Uganda & Tanzania	3,711.00	5,000.00
2.	Perdiem-Foreign participants (US\$30x6 days) -Local participants (US\$10x6 days)	1,895.00	2,450.00
3.	Board and lodging	3,631.00	4,850.00
4.	Fees for speakers	2,400.00	1,600.00
5.	Training materials-imagery	5,400.00	5,300.00
6.	Transportation expenses for participants and speakers	1,280.00	1,000.00
7.	Utilities	2,760.00	2,500.00
8.	Administrative support	4,320.00	3,800.00
9.	Contingencies-PC Upgrades	1,085.00	1,000.00
10.	Miscellaneous-Stationery & teas	<u>652.00</u>	<u>500.00</u>
	TOTAL	<u>27,134.00</u>	<u>28,000.00</u>

ANNEX VII

LIST OF LECTURE HANDOUTS

1. Mr. Anyango, S. O. - Water Pollution and Management status of Rivers in the Greater Nairobi Area
2. Dr. Obiero, S. - Nairobi Waste Management and Transportation: The Current Situation
3. Mr. Isavwa, L.A. - Remote Sensing Applications for Urban Areas
4. Dr. Namai, H.W. and Mr. Ochanda, N. - In situ Monitoring Data of Urban Industrial Areas
5. Mr. Ochanda, N. and Mr. Isavwa, L.A. - Discussions on Monitoring Systems and Preparations for visit to Nairobi Industrial Area
6. Agatsiva, J.L. - Geographic Information System (GIS)
7. Mr. Nyabenge, M. Mrs. Waweru, M. Mr. A. Cimbelli - Demonstration of Case Studies by GIS, RS and IPS to support the Development of Decision Support Systems (DSS)
8. Mr. Oroda, A. - Image Processing Systems (IPS)
9. Prof. Feoli, E. - Discussion on the role of Industrial Siting for the Industrial Development
10. RCSSMRS - Presentation of Project Environmental Impact Assessment of Air, Water and Waste Pollution due to Industrial Development in Nairobi, Kenya.



THE CENTRE'S HEADQUARTERS

P.O. Box 18118 Telephone 803320—9 Telex 25285 KEREKS KE
Telegrams REGSURVEY Fax 802767 Nairobi, Kenya.
