Ethiopian Society of Soil Science

No. 1 September 1993

Newsletter
OBJECTIVES OF THE SOCIETY

1. To foster a more united professional guidelines in the field of Soil Science among Soil Scientists, to solve problems related to soils and to serve Ethiopia's agriculture in a more efficient manner.

2. To facilitate better professional contacts and establish cooperation with interested organizations (National and International) which have related fields of work and similar objectives through the exchange of information and experiences.

3. To properly document soil science works (in the country), summarize research results and avail the information to individuals and institutions through publications, monographs, journals, books, and pamphlets as required.

4. To promote the art and science of soils and raise the consciousness of the public on soils and their importance in Ethiopian agriculture.

5. To efficiently disseminate information to farmers and consult with other agricultural organizations on soils problems.

MEMBERSHIP INFORMATION

Members of the Society shall be classified in the following categories:

1. Active members
2. Associate members
3. Honorary members
4. Sustaining members
5. Student members
6. Life time members

Membership is open to all who are interested in Soil Science and related fields of studies.

Membership enquiries should be addressed to the General Secretary.

Ethiopian Society of Soil Science
P.O.Box 27482
Addis Ababa
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EDITORIAL

It has already been over three solid years since the Ethiopian Society of Soil Science (ESSS) was founded. The concern of the soil scientists for the establishment of the Society is understandable, when one considers the role of soil scientists in the national endeavour to boost agricultural productivity and to protect and efficiently utilize the diminishing natural resources.

For the past two decades we have been repeatedly experiencing the tragic suffering of our nation from chronic food shortage and malnutrition. Although the major causes for such sad situations are man-made problems and high population growth, draught and soil degradation are also important factors. Through rational use of natural resources and better soil management, the nation could undoubtedly increase agricultural productivity and become self-sufficient for all its requirements. However, to arrive at such stage, it requires the devotion of all agriculturalists at large and specifically that of the soil scientists.

The past political turmoil at the time of the establishment of the Society was a big hindrance for the legalization of the ESSS. But, through the unrestrained attempts of some of the executive committee members, the Society is now on its feet. Many thanks go to the Ethiopian Science and Technology Commission (ESTC), the Ministry of Natural Resources Development and Environmental Protection (MNRDEP) and a few other institutions who assisted the Society beginning from its inception to its current status.

During the last three years ESSS might have not registered any tangible output with respect to the development of soil science in the country. However, the founding of the Society as a legal entity, registration of members and more important, having the ESSS registered as a member of the International Society of Soil Science are some of the encouraging activities carried out to lay a fertile ground for future progress.

This Newsletter which appeared for the first time, is also one important media through which the Society members could exchange ideas among themselves, convey important messages to the public and advice policy makers on priorities and approaches to be followed in solving soil management and related problems.

Using this Newsletter as a media, important ideas, experimental findings, aspects that need attention, upcoming events, etc. could be entertained. Considering this ample opportunity, members should keep their Newsletter alive by contributing useful articles. The ultimate objective is to produce a Soil Science Journal.
1. INSTITUTIONS/NETWORKS

1.1. Natural Resources Development and Environmental Protection

Natural resources development and environment protection activities were formerly being addressed by separate institutions under different ministries. The output of these institutions in respect of development taken together was very low when compared with the inputs (finance, man power and material) used, due to overlapping of activities.

In order to resolve the problem of uncoordinated work and improve the output, the Transitional Government of Ethiopia established a new ministry - The Ministry of Natural Resources Development and Environmental Protection (MNRDEP), responsible for the country's natural resources (soil, water, forestry and wild life) protection, development and proper utilization as well as protection and control of air and water pollution produced as a result of various activities; and in the natural environmental balance.

The MNRDEP was established on January 20, 1993 by proclamation No. 41, article 1 of 1993. The ministry which is accountable to the council of ministers is entrusted with the power and duties previously vested with Ministry of Agriculture and Environmental Protection (in respect of soils, forestry and wild life protection and development) Water Resources Commission and the Ethiopian Valleys Development Studies Authority (in respect of water resources development of the country).

The ministry is divided into two main branches, viz. (1) Natural Resources Development and Conservation (2) Water Resources Development. Each branch is run by a vice minister.

The Ministry of Natural Resources Development and Environmental Protection has a broad mandate and a wide range of responsibilities. Its main powers and duties include:

- Formulation of policies and strategy regarding the country's natural resources development and environmental protection, follow up and supervise their implementation;

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Asnakew Woldeab(Ph.D) - Vice-President, ESSS.
- Preparation and submission of draft laws concerning the development, protection and utilization of the country's water, forest and wildlife resources; follow up and supervise their enforcement;

- Delineation of the boundaries of the country's valleys; surveying the quantity and distribution of natural resources in the valleys and the collection and recording for data pertaining thereto on the basis of watersheds.

- Undertaking studies pertaining to the utilization of the waters of transboundary rivers, and follow up the implementation of same;

- Undertaking studies and issuing and supervising the implementation of directives with a view to controlling the impact of depletion of natural resources on the environment and preventing water, soil and air pollution; and,

- Establishment and direct research and training centers that may assist the enhancement of the development of natural resources and environmental protection.
1.2. SFRALNE: Soil and Plant Analysis Laboratories Network of Ethiopia

Establishment

It is evident that there are a few soil testing and plant analysis laboratories in the country. The majority of this laboratories belong to the Institute of Agricultural Research and the universities and are mainly rendering analytical services to the research programmes. Although soil testing laboratories have very important role in natural resources identification and agricultural development, most of the existing laboratories are not in a position to render the required types and quality of analysis due to several reasons. The analytical data outputs of most of these laboratories are limited by shortages of functional instruments, lack of trained technicians and inadequacy of essential laboratory supplies and facilities. The quality and reliability of analytical results are, however, affected by the absence of standardized analytical procedures, lack of exchange of information among laboratories and shortage of qualified technicians in most of the laboratories.

These problems have been discussed at several forums and are already recognized by most of the agriculturalist. The practical solution to systematically solve this problem, as suggested by most professionals involved in the field, was to establish a central coordination system for all soil testing and plant analysis laboratories in the country. In connection with this the concrete recommendation given on the Natural Resources Conservation Conference, which was held in February, 1989, was to establish a system for the coordination of the national soil and plant analysis laboratories. On this same conference, the National Soil Service Laboratory (NSSL) of the MNRDEP was given the responsibility for establishing the desired network.

* Sahlemedhin Sertsu (Ph.D) - President, ESSS; and Network Coordinator.
Based on the recommendation given by the conference participants, the NSSL organized a meeting which was attended by the heads and/or representatives of twelve soil and plant analysis laboratories in the country. At this meeting, the Network establishment proposal which was prepared by the NSSL, was thoroughly discussed and accepted with some modifications. Finally, all participants of the meeting, convinced of the fact that their common laboratory related problems could only be solved through a coordinated approach, unanimously decided for the establishment of a soil and plant analysis laboratories Network. As an outcome of this decision, the Network was formally established on February 11, 1992 and was given the name SPALNE (Soil and Plant Analysis Laboratories Network of Ethiopia). On this same meeting, the National Soil Service Laboratory of the Ministry of Natural Resources Development and Environmental Protection was given the Network’s coordination responsibility.

The overall goal of SPALNE is to improve the soil and plant analytical services required to support agricultural research and natural resources conservation and development activities. This is to be achieved by improving the quantity and quality of analytical data outputs of the existing laboratories and of those yet to be established.

To achieve the overall goal, the Network (SPALNE) concentrates on the following four major objectives:

1. Standardize and adopt appropriate methods for soil and plant analysis.
2. Establish close collaboration among all soil and plant analytical laboratories in the country for better exchange of information.
3. Train laboratory technicians in both analytical methodologies and maintenance of laboratory equipment.
4. Establish soil and plant analysis data quality control system which may be suitable for all laboratories in the country.
5. Find a means to establish an instrument repair and maintenance workshop at national level or to be able to use the existing ones, if any.
6. Find means to establish a system for central procurement of chemicals, glassware, instrument spare parts and other necessary laboratory items in order to save time and economize resources.
Activities Undertaken

Since the establishment of SPALNE, the following major activities have been carried out by the coordinating office:

1. The SPALNE is registered as a member of the Soil and Analytical Laboratories Network of Africa.

2. The suitability of different types of analytical procedures are being reviewed and tested on different types of soils and plants. When the laboratory testing, as well as the draft procedure manual is completed, the Network members will be asked to comment on it, and the final procedure manual will be distributed for common use by all laboratories in the country.

3. A manual on "Good Laboratory Practice" has been already compiled and is about to be distributed to the member laboratories for use.

4. Training on soil testing and plant analysis techniques for senior and junior laboratory technicians (two weeks each) have been offered for those nominated from different Network member laboratories.

5. Some major and minor laboratory instrument repair services are rendered by the NSSL to network member laboratories both in and out side of Addis Abeba.

6. Assessment of the present status of most of the soil and plant analysis laboratories in the country is already made through questionnaires and visits by the Network coordinating office. Based on the results of the interpretation of the data collected, a proposal will be presented to the Government and other funding agencies for possible future support of the laboratories which need special attentions. Proposals for the establishment of additional laboratories in areas where they do not exist at present will also be put forward.

7. A request has been forwarded to the UNDP to finance short term training abroad for some technicians of regional Network member laboratories.

In order to be able to achieve it's objectives, SPALNE highly encourages all laboratories, individuals, firms and organizations, who directly or indirectly benefit from soil and plant analysis services, to be members or at least assist the Network in any way they can. The membership to the Network is open to all interested individuals, organizations, firms and any other entities that are engaged in promoting or who support the development of soil and plant analysis programme in the country.
For any assistance to be given to SPALNE or to learn more about the Network, please contact through the following address:

Network Coordinator
SPALNE
P.O.Box 147
Addis Ababa

Tel. 51-76-57
Fax. 51-52-88
2. POLICIES

2.1. Preparation for A National Agricultural Policy and Strategy

Despite the favorable resource endowments and the importance of agriculture to the national economy, Ethiopia’s agricultural production system uses age-old traditional technologies. Efforts made to modernize or improve these technologies using locally generated or introduced technologies have been relatively very minimal. As a result the country still faces periodic food shortages resulting in grain imports and food aid.

Among the number of problems that retarded the use of improved technologies is the lack of coherent and clearly articulated agricultural research policy and strategy that would provide direction for the use of science and technology for agricultural development. Such lack of agricultural research policy not only resulted in the ineffectiveness of those government institutions with the mandate to coordinate agricultural research, but has also led to the redundancy of programs and the uneconomical use of the limited resources that the country has.

Although a variety of important issues (related to generation and dissemination of agricultural technologies through research and extension respectively) have been raised in the past, very little attempt had been made to formulate a national agricultural research policy. The Transitional Government of Ethiopia has felt that in order to create and guide a more viable and dynamic national agricultural research system, a national agricultural research policy is a pre requisite. Therefore a task force composed of experts drawn from different institutions was formed to prepare a draft agricultural research policy and strategy.

The task force had actively worked in the past months and the draft policy is now ready. The draft policy is based on experience from the assessment of the R&D situation of the country as well as by an examination of the experiences of other countries. The results of the assessment are compiled in a separate volume. Based on the assessment, the first draft policy and strategy was prepared and commented upon at a national conference. The recommendations and comments of the conference were incorporated in the policy document and it will be forwarded shortly to the TGE for final approval.

*Beyene Kebede(Ph.D) - Chairman, Agricultural Research Policy and Strategy Task Force.*
The draft policy, in addition to identifying the general objectives, policy guidelines and strategies of a national agricultural policy, deals with agricultural research capability building and proposes an organizational structure for a more efficient coordination of research activities both at a national local and regional levels. It also sets criteria for prioritizing agricultural research. Attempt has also been made to harmonize the agricultural research policy with agricultural development and science and technology policies.
Agriculture plays a dominant role in the Ethiopian economy accounting on the average, for about 44% of the GDP, more than 85% of the exports, and 85% of labor employment.

Ethiopia has vast natural resource base to support production of food crops, industrial raw materials, and export commodities. Despite these facts, the country could not attain food self-sufficiency and as a result, the population suffers from lack of adequate food availability. The estimated average per capita daily calorie intake was reported to be less than 80% of the minimum requirement for a healthy life.

The country's food deficit is met from limited imports and various food aid programs. The food deficit is expected to reach high levels because of population growth and low agricultural productivity. Hence, it is of paramount importance to increase agricultural productivity on a sustainable basis not only for food security reasons but also for the production of other commodities as well. Raising per unit productivity of land by making use of improved technologies would be an important strategy towards increasing food production although less preferably, expanded acreage can also have a limited role.

Production can be raised through increased and widespread use of fertilizers and other needed inputs along with improved seed and better agronomic and water management practices. The importance and profitability of fertilizer use is well established in some regions and as a result demand is rising. Hence, mechanisms need to be developed so that fertilizers become available and are efficiently used. In order to increase agricultural production through fertilizer use, availability of information, support services, and fertilizer materials in the area of interest is important.

Promotion and development of the fertilizer sector requires clear-cut policy and strategy that would give support to the rapid growth of agricultural production and productivity. So far attempts have not been made to establish fertilizer policies and guidelines and as a result the contribution of the fertilizer sector had been limited. The Transitional Government of Ethiopia realizing the need for a fertilizer industry directives has established a task force to draft a fertilizer policy and strategy. The envisaged national fertilizer policy is expected to contribute to the national goal of sustained growth in agricultural production and productivity. The policy will also help promote the development and use of indigenous sources (organic and inorganic) in addition to establishing efficient fertilizer importation and distribution system.

* Tadele G/Selassie(Ph.D) - Secretary, Fertilizer Policy and Strategy Task Force.
2.3. The Consensus - Building Process of the Ethiopian Forestry Action Programme (EFAP)*

Ethiopia's forests are declining in both quantity and quality particularly since the 1950s. Today, less than 3% of the surface area is covered with forests. Far-reaching deforestation has aggravated soil erosion and resulted in the serious degradation of land and watersheds. A substantial area of the Highlands has already been taken out of agricultural production as a result of severe degradation of soils and watersheds. Agricultural productivity in many areas is diminishing for the same reasons. These developments have exacerbated Ethiopia's problems in feeding its population by adding to the crisis of droughts. Conserving the existing forests and developing new ones has, therefore, become an integral part of the overall goals of economic development and food security.

The then Government of Ethiopia (GoE) in the context of its National Program (NP) for the conservation and development of the country's forests, wildlife, soil and water resources recognized the urgent need to arrest environmental degradation. Accordingly, the idea of a forestry action program emerged as a conceptualization of the NP within the general framework of the Tropical Forestry Action Program (TFAP) in the mid-1980s. In 1988 and upon request from the GoE, FAO prepared a preliminary document for Ethiopia on TFAP. In the effort to do a more comprehensive and analytic treatment of the forestry-sector and ultimately mobilize required resources for investment from the international donor community, the GoE then sought the assistance of the United Nations Development Programme (UNDP)/World Bank towards the preparation of EFAP. Following its 1989 "Inventory of Forestry Projects in Ethiopia" the World Bank agreed to be the executing agency for this work.

Conceptualization of the EFAP process started in January/February 1990 with a project identification mission from the World Bank followed by the preparation of a project document and institutional arrangement in March/April 1990. The Project Document was signed in June 1990, involving the GoE, UNDP and the World Bank.

* Ethiopian Forestry Action Programme(EFAP) Secretariat, P.O.Box 5932, Addis Ababa.
As a project of the Transitional Government of Ethiopia, EFAP is a national effort towards conserving, developing, managing and sustainably utilizing Ethiopia’s forest resources. Based on an analysis of the whole range of forestry issues, it has defined sectoral objectives and strategies, and identified policy and institutional reforms as well as an investment program required to implement proposed strategies.

Preparation of the Ethiopian Forestry Action Program was a genuine national effort done by and through the involvement of many Ethiopian experts and local institutions. At the national level, an EFAP Secretariat was established to coordinate EFAP preparation. The Secretariat while administratively lodged in the Ministry of Natural Resources Development and Environmental Protection, is guided by a National Policy/Project Coordination Committee (NPCC) with senior representation of Government agencies. Headed by a National Project Coordinator and working under the overall supervision of the EFAP Task Manager of the World Bank Team and in consultation with the chairperson of the NPCC, the EFAP Secretariat facilitated all routine project activities and inputs. An early and critical country-driven initiative of the Secretariat was to develop an EFAP Issues Paper, which provided not only an overview of the Ethiopian Forestry Sector, but also identified the major sectoral issues and what priority programmes need to be developed under the EFAP process.

The EFAP (NPCC) has been a key and decisive element in as far as the national coordination effort of the study was concerned. Its major role was to facilitate, coordinate and give general policy guidance to the planning, organization and implementation of the EFAP study.

To this effect several informal and formal NPCC review meetings were held during the course of the EFAP preparatory process. A major element that characterized EFAP and one of the factors which made it a country-driven exercise was the fact that not only did it involve a lot of disciplines but also that it was intersectoral and integrative in nature.

The conceptualization and adoption of a multi-disciplinary approach to the whole gamut of forestry and forestry-related issues was thus found necessary to ensure comprehensiveness and clarity to the planning and implementing phase of EFAP. Accordingly, some 14 forestry and forestry related disciplines were identified and closely looked at in the effort to make an in-depth analysis of the Forestry Sector. These disciplines were covered initially by a team of national experts (Task Forces and National Working Groups) followed by a team of national as well as international consultants. Over 60 national (9 of which were expatriates of long-term Ethiopian experience and represented donors and NGOs) professionals of diverse but relevant disciplines for the EFAP exercise were drawn from various sectors of the economy (inter-sectorally) and these comprised 12 EFAP Task Forces (TFs) and three National Working Groups (NGWs).
Between these groups a total of 27 technical reports were produced. A corresponding multi-disciplinary team of twelve international consultants plus five in other disciplines also produced a total of 17 technical reports. Each TF/NWG exercise and consultancy tried to focus on specific issues that relate to each discipline while at the same time trying to consider interrelationships within the overall framework of the Forestry Sector. In the final analysis, the challenge was the integration of outputs of the various disciplines into a comprehensive, time-bound, and action-oriented EFAP. The technical reports prepared by the EFAP Task Forces and national and international consultants, proceedings of the five technical Workshops and the EFAP National Seminar, the views expressed at various brainstorming sessions, etc., served as working papers for the preparation of the EFAP Main Report.

EFAP has been a consensus building process, seeded on firm grounds of local participation and a good deal of transparency. Throughout its programme's formative stages, EFAP was characterized by a well-momentumed sequence of events actively and fully participated by representatives of government, the public (including mass organizations, professional and civic associations), members of the donor community and non-governmental organizations (NGOs). Broad-based participation and transparency throughout the exercise was heightened through various means including the holding of the able mobilization of over 60 TF/NWG members who represented no less than 40 different agencies/units of government, the private sector, NGOs, and members of the donor community. The innovative ideas of holding a series of brain-storming sessions and technical workshops further made the EFAP exercise to be, not only broad-based and transparent, but also helped enrich its study outputs. It is interesting to note that during the course of these consultations some 90 agencies/units of government, private sector, NGOs, and the donor community, professional and public organizations participated/ were represented. Of significant importance was the successful conclusion of the five technical workshops and the EFAP National Seminar both of which enjoyed large and broad-based attendance. The openness, frankness and constructive approach with which the workshops and seminar participants have contributed to the EFAP process was impressive. As a result it has been possible to provide sharper focus to the understanding of Ethiopian forestry sector issues, taking into account a wide range of views on the resolution of such issues.

Indeed, the holding of these National Seminar was just another milestone in the EFAP consensus building process. The EFAP Main Report together with the outcome of the National Seminar already prepared as an addendum, will be presented at the envisaged Donors Conference in September, 1993. In sum, the EFAP was meant and did serve as meeting ground to ensure genuine participation and full transparency to and by all of its project partners.
3. FROM THE RECORDS


RECOGNIZING: The declining trend in agricultural productivity resulting from inadequate soil and water management in Africa.

NOTING: The necessity for proper soil and water management to compatibility of results and sustain agricultural productivity in the continent.

AWARE: of the efforts of national, regional and international organizations towards sustainable agriculture.

RECOMMEND THAT:

1. African Governments:
   a) Give full support to works on soil and water management.
   b) Create appropriate institutions and mechanisms for soil and water management as well as strengthening the existing ones.
   c) Adopt; for the development of their agricultural and settlement programs, sound land use policies which prevent land degradation and reclamation of waste lands.
   d) Support collaboration and exchange programs among African Scientists in order to bridge the gap in the field of land use and water management techniques among individual African countries.
   e) Promote human resource development in soil and water management to enhance sustainable agriculture.
2. OAU, ECA and other Regional Bodies:

a) Give priority to soil conservation and soil and water management in their agricultural development programs.

b) Support activities aimed at creating awareness on soil degradation and erosion and finding lasting solution for sustained agriculture.

c) Support training programs of scientists and technicians in the field of soil and water management as well as other disciplines of soil science and related subject.

d) Ensure publication and distribution on regular basis of African Soils as main organ of information among African soil scientists.

3. African Soil Scientists:

a) Give their full endorsement and support to the FAO initiative to develop in close collaboration with UNEP, African Soil Institutions and international scheme for conservation and rehabilitation of African lands.

b) Adopt the methodologies published by FAO/UNEP for the assessment of soil degradation in order to facilitate exchange of information and comparison of results on soil degradation process among African Countries, and assist in their further development.

c) Request FAO, UNEP and other agencies to continue their activities on assessment of degradation, including methodology development and widely distribution of the report on work already completed to African nations.
3.2. Rio Conference on Environment and Development

The global environmental issues are concern to Ethiopia as they are to all nations of the world. These issues are climate change, biological diversity and biotechnology hazard wastes and toxic chemical disposal, utilization and equitable distribution of fresh water, and land degradation, drought and desertification.

The United Nations conference on Environment and Development was held in Rio de Janeiro from 3rd to 14 June 1992. During this conference the agreements on Environment and development has been adopted. Following is the text of the preamble to Agenda 21. Agenda 21 is the basic document of Environment and Development which actually is the concern of humanity.

Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can in a global partnership for sustainable development.

This global partnership must build on the premises of General Assembly resolution 44/228 of 22 December 1989, which was adopted when the nations of the world called for the United Nations conference on Environment and Development, and on the acceptance of the need to take a balanced and integrated approach to environment and development questions.

Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century. It reflects a global consensus and [political commitment at the highest level] on development and environment cooperation. Its successful implementation is first and foremost the responsibility of Governments. National strategies, plans, policies and processes are crucial in achieving this. International cooperation should support and supplement such national efforts. In this context, the United Nations system has a key role to play. Other international, regional and subregional organization are also called upon to contribute to this effort. The broadest public participation and the active involvement of the non-governmental organizations and other groups should also be encouraged.
The developmental and environmental objectives of Agenda 21 will require a substantial flow of new and additional financial resources to countries in need, particularly to developing countries, in order to cover the incremental costs for the actions they have to undertake to deal with global environmental problems and to accelerate sustainable development. Financial resources are also required for strengthening the capacity of international institutions for the implementation of Agenda 21. An indicative order-of-magnitude assessment of costs is included in each of the programme areas. This assessment will need to be examined and refined by the relevant implementing agencies and organizations.

The programme areas that constitute Agenda 21 are described in terms of the basis for action, objectives, activities and means of implementation. Agenda 21 is a dynamic programme. It will be carried out by the various actors according to the different situations, capacities and priorities of countries and regions. It could evolve overtime in the light of changing needs and circumstances this process marks the beginning of a new global partnership for sustainable development.
4. HUMAN RESOURCE DEVELOPMENT

Information has reached the Society office about the following recent graduates in the area of Soil Science.

1991

Getachew Gurmu. MSc. The effects of length of fallow and cultivation periods with fertility and productivity of Lixisols in Dizi catchment, Illubabor region. Department of Geography, Addis Abeba University.

Thomas Tolcha. MSc. Aspects of soil degradation and conservation measures in Agucho catchment, Western Harergh. Department of Geography, Addis Abeba University.

Yazew Teferi. M.Sc. Charge Properties of some soils on volcanic material from Rwanda. State University of Ghent, Belgium.

1992


Belay Tegene. PhD. Erosion: Its effects on properties and productivity of Eutric Nitosols in Gununno area, south Ethiopia and techniques for its control. University of Bern, Switzerland.


Selam Yihum Kidanu. M.Sc. Hydrophysical characterization and soil-water-air interaction of Ethiopian highland Vertisols. ITC, University of Ghent, Belgium.

Urs Shultess. Ph.D. The impact of Vertisol management systems on wheat production in the Ethiopian highlands. Swiss Federal Institute of Technology, Zurich, Switzerland.

1993


Aynalem Abebe. Ph.D. Effect of mineral fertilizer dosage on the productivity of maize, soya and phaseolus during their mixed culture in typical Serozem condition of Taskent region. Taskent’s Order of Friendship Society Agricultural University, Taskent, Usbekstan.


Solomon Abate. Ph.D. Land cover/land use dynamics, soil degradation and potential for sustainable agricultural land use in Metu area, Illubabor Administrative Region. University of Berne, Switzerland.

Taye Bekele. Ph.D. Studies on P-dynamic, P-supply and P-effect of different phosphate fertilizers, especially of rock phosphate on red brown soil in the highlands of Ethiopia. Justus-Liebig University, Giessen, Germany.
5. PUBLICATIONS*


* Although a lot more publications have been produced, the Society Office was not able to get full information; we hope to include the rest in our next ESSS Newsletter.
6. ESSS MEMBERS

**Active Members**

1. Abebe Misgina
2. Addis Chernet
3. Alemayehu Tafesse
4. Alemayehu Neway
5. Alemtsehaye Woldeab
6. Ali Yimer
7. Andualem Taye
8. Angaw Tsigie
9. Asnakew W/ab
10. Assefa Zeleke
11. Asgelil Dibabe
12. Azene Bekele
13. Abate Tijo
14. Asfaw H/mariam
15. Balesh Tulema
16. Belete Tirago
17. Carucci Volli F.P.
18. Daniel Itenfisu
19. Desta Goshu
20. Dawit Solomon
21. Duga Debele
22. Dechasa Jiru
23. Escobedo Javier
24. Enawgaw Alemu
25. Endale Bekele
26. Eylachew Zewdie
27. Fantu Shewamare
28. Fentaw Abegaz
29. Fikru Abebe
30. Getachew Alemu
31. Geremew Eticha
32. Girma Tadesse
33. Haque, I.
34. Kebede Tato
35. Kefeni Kejela
36. Kelsa Kena
37. Kruger Hans-Joachim
38. Lema Zewdie
39. Melesse Eshetu
40. Mesele Fisseha
41. Mesfin Abebe  
42. Miresa Duffera  
43. Mitiku Haile  
44. Negash Demissie  
45. Negash Tessema  
46. Sahlemedhin Sertsu  
47. Shimelis Sima  
48. Senbeta Esata  
49. Tadele G/selassie  
50. Taye Bekele  
51. Tekalign Mamo  
52. Tamirat Tsegaye  
53. Tamirle Hawando  
54. Teklu Baissa  
55. Teklu Erkossa  
56. Tesfaye Kebede  
57. Tsedale Waktola  
58. Yohannes Uloro  
59. Zebene Mikru  
60. Zewdu Yilma  
61. Zena Estifanos  

**Associate Members**

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3. Amdie Kidanewold  
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5. Fantahun G/yesus  
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7. Kindu Mekonnen  
8. Kassahun Zewdie  
9. Melaku Mekonnen  
10. Solomon Abate  
11. Tefera Ajema  
12. Tilahun Tadios  
13. Wollelei Melesse  
14. Yohannes G/michael  
15. Zeleke Tesfaye  
16. Zerihun Woldu  

**Life-time Members**

1. Berhanu Debele
ETHIOPIAN SOCIETY OF SOIL SCIENCE

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(1990-1993)

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