

OSESG'S ROLE IN OIL SANDS LAND RECLAMATION

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I. INTRODUCTION

The Oil Sands Environmental Study Group (OSESG) was formed early in 1973 by sixteen major petroleum companies who were either oil sands operators or lease holders (The Herald 1973). The group was designed to operate as a co-operative venture with each of the members financing group environmental research projects in the Athabasca Oil Sands area.

Initial areas of research interest were the existing ecology of the oil sands and environmental engineering, including climatology and hydrology. Studies were to be conducted by private consultants, universities, government agencies and/or staff of member companies.

OSESG has continued to be active since 1973 and its membership as of April, 1982 consisted of seventeen companies (Table 1).

The current mission of OSESG is to "promote or foster a business climate supportive of member companies objectives as they relate to issues associated with the ecosystems of the oil sands region of Alberta."

II. ORGANIZATION

OSESG consists of an executive body (Chairman, Vice-Chairman, Secretary/Treasurer and two members at large), general members and, within the past several years, an ad hoc committee on soil reconstruction and two standing committees have been established, one on air pollutants and the other on land reclamation (Figure 1).

As this paper is concerned with land reclamation, the portion of Figure 1 dealing with the standing committee on effects of air pollutants on the environment will not be subject to further discussion. It was presented here to provide an overall OSESG perspective.

Table 1. Oil Sands Environmental Study Group
members as of April, 1982.

- Alsands Project Group
 - Amoco Canada Petroleum Ltd.
 - BP Exploration Canada Ltd.
 - Canadian Superior Oil Ltd.
 - Canstar Oil Sands Ltd.
 - Chevron Standard Ltd.
 - Dome Petroleum Ltd.
 - Esso Resources Canada Ltd.
 - Gulf Canada Resources Inc.
 - Home Oil Company Ltd.
 - Husky Oil Operations Ltd.
 - Mobil Oil Canada Ltd.
 - Petro-Canada
 - Shell Canada Resources Ltd.
 - Suncor Inc.
 - Syncrude Canada Ltd.
 - Texaco Canada Resources Ltd.
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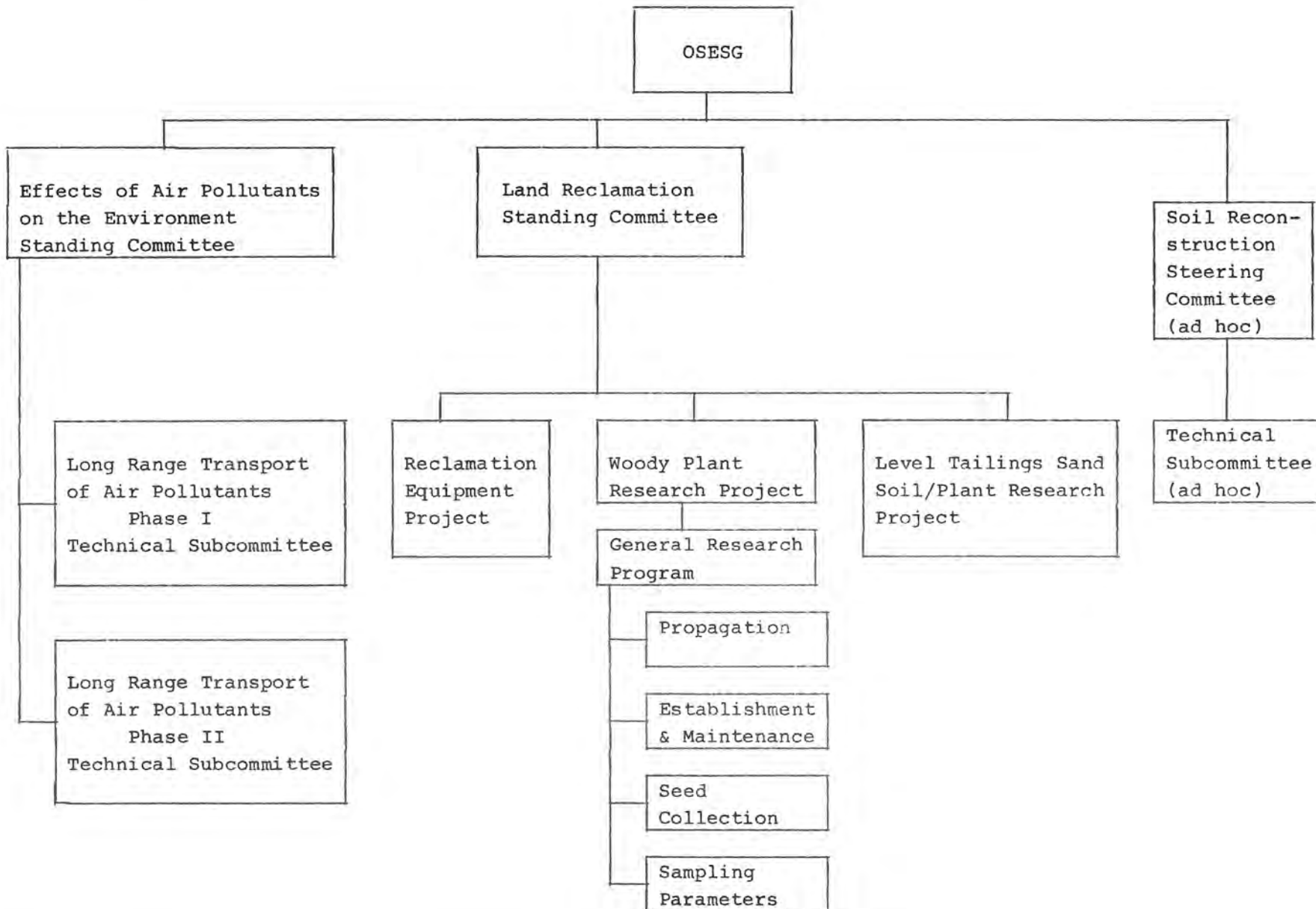


Figure 1. Oil Sands Environmental Study Group committees as of April, 1982.

III. LAND RECLAMATION

With respect to land reclamation, OSESG has two major thrusts: 1) maintaining an awareness of pertinent reclamation information and, if necessary, responding to it; and 2) identifying reclamation problems and initiating research to resolve those problems.

In the first area, OSESG has been involved in discussions concerning the Techman-Rheinbraun report's (Techman Ltd. and Rheinbraun-Consulting GmbH 1979) recommendations regarding soil reconstruction requirements. OSESG has also participated in a 1980 Forest Soils Reconstruction Workshop (Ziemkiewicz et al, 1980) and just became an active member of two committees of the Alberta Soils Advisory Group. They are the Land Reclamation and Soil Classification and Inventory Committees. The OSESG Land Reclamation Committee also participated in governmental discussions regarding the "Proposed Soil Quality Criteria In Relation to Disturbance and Reclamation" report recently released by the provincial government.

In 1979, OSESG initiated formation of an ad hoc Soil Reconstruction Steering Committee to focus on the reconstruction of soils in oil sand tailings. This group consists of a steering committee and a technical subcommittee. The membership on both these groups is made up of representatives from industry and government. The chairman of the steering committee is Dr. G. Lesko of Syncrude Canada Ltd. and the technical subcommittee is chaired by Mr. D. Klym of Suncor. Approximately 90 percent of the funding for this study has been provided by industry and 10 percent by the provincial government.

The objective of this study is to review the existing literature concerning forest soils with the intent of defining:

1. The minimal physical, chemical and biological properties required for a soil engineered from tailings sand, peat and overburden to support plant communities of: a) jack pine, b) mixed boreal forest, and c) grass.

2. The weaknesses in the arguments developed in item 1.
3. The studies required to strengthen the arguments developed in item 1.

This study is currently active and the draft is in the re-writing stage with a final report expected to be published in late 1982. Additional details about the study can be found in a paper presented two years ago by Mr. Richard Johnson of Monenco Consultants Ltd. (Johnson, 1980).

Following formation of the above ad hoc committee, it was clear there was a need for OSESG to have a committee dealing on a regular basis with the subject of land reclamation. Subsequently a standing committee on land reclamation was formed and placed for several years under the able leadership of Mr. Bill Cary of Suncor Inc. Early in 1982, Mr. Cary stepped down as Chairman and Dr. A.W. Fedkenheuer of Canstar Oil Sands Ltd., was elected as the new Chairman.

The committee membership is open to representatives of all OSESG member companies and currently Alsands, Canstar Oil Sands Ltd., Gulf Canada Resources Inc., Petro-Canada, Suncor Inc. and Syncrude Canada Ltd. have taken advantage of the opportunity to participate on the committee.

The committee's objectives are to:

1. Promote the exchange of reclamation information between interested companies through a pooling of experience, expertise and funds while recognizing there remains a need for each company to conduct site-specific reclamation research.
2. Actively respond to reclamation issues affecting oil sands companies.

The committee is active and has been working with the provincial government's Reclamation Research Technical Advisory Committee (RRTAC), chaired by Dr. P. Ziemkiewicz, to develop joint industry-government reclamation research studies.

IV. LAND RECLAMATION COMMITTEE PROJECTS

The current active projects are shown in Figure 2. These projects have been established with two managers, one representing government and one representing industry. The two person team works under the guidance of the joint OSESG-RRTAC steering committee to: a) develop terms of reference for the study, b) solicit proposals from consultants, c) recommend a consultant to do the study, d) supervise the consultants; and e) recommend acceptance/rejection of the consultant's final report.

A discussion of each of the projects is presented in the following paragraphs. An attempt is made to delineate project managers, study objectives and the status of the study.

Reclamation Equipment Project

The project managers for this study are D. Klym of Suncor Inc., and J. Hermans of Alberta Agriculture.

Study objectives are to:

1. To identify tilling equipment commercially available for mixing soil amendments with oil sands tailings sand.
2. To assess the equipment's capability for doing the work.
3. To recommend follow-up work.

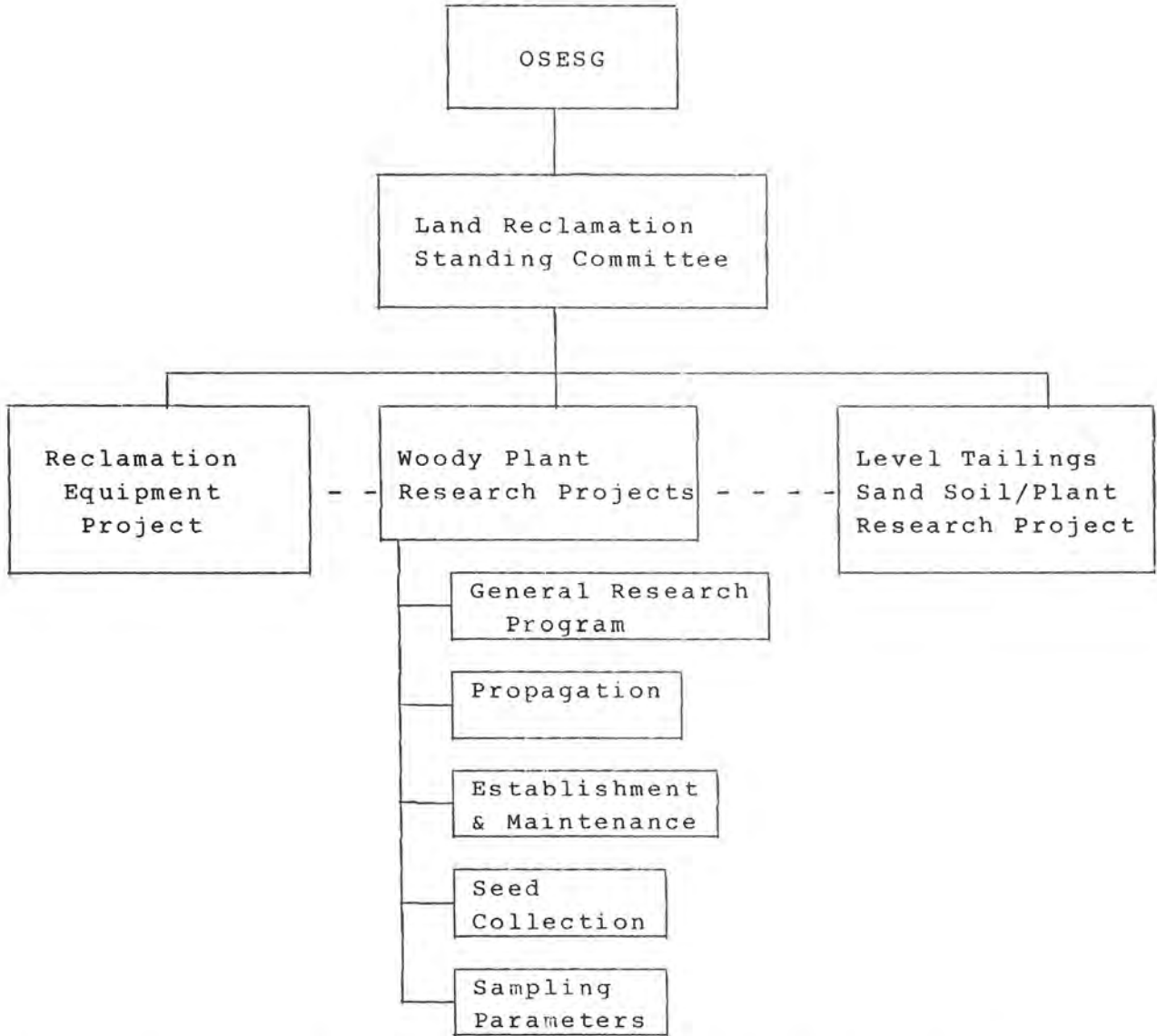


Figure 2. Current projects of the OSESG Land Reclamation Standing Committee (April 1982).

This project is active and it is expected a summary report will be available in mid-1982.

Woody Plant Research Program

This program was developed and defined by program managers P. King of the Alberta Forest Service and Dr. A. Fedkenheuer of Canstar Oil Sands Ltd.

The objective of this program is to determine the general research projects required for the successful growth of woody plants on tailings sand sites.

This portion of the Land Reclamation Committee's endeavours in woody plant research has attempted to delineate a systematic approach to obtaining solutions, over the long term, to current problems in dealing with tree and shrub species in the oil sands. It has led to the development of a number of other projects which are described in the following paragraphs.

Woody Plant Seed Collection Project

The managers for this project are P. King of the Alberta Forest Service and D. Klym of Suncor Inc.

The objective of this project is to obtain and store sufficient seed of desired woody plants for eventual growing and outplanting of stock in field trials.

Seed of all the desired species has been collected, cleaned and is in cold storage.

Woody Plant Propagation Research Project

Project managers for this study are L. Callow of Gulf Canada Resources Inc. and P. King of the Alberta Forest Service.

Objectives of this study are to:

1. Obtain state-of-the-art information on propagation methodology for selected native and exotic woody plants through a review of published and unpublished information.
2. Identify gaps in knowledge and specify research needs.

This project is active with a final report expected in mid-1982.

Woody Plant Establishment and Management Project

Chris Powter of Alberta Environment and M. Fung of Syncrude Canada Ltd. are the managers for this project.

The objectives for this study are to:

1. Review information on woody plant establishment and management on level to gently sloping tailings sand and similar sites.
2. Prepare an evaluation of the information and provide recommendations on the most suitable methods for establishing and maintaining plant communities on amended tailings sand.

This project is active and a final report is expected in late 1982.

Woody Plant Sampling Parameters Project

The project managers for this study are D. Dabbs of the Alsands Project Group and H. Tomm of the Alberta Forest Service.

Study objectives are to:

1. Examine available plant and soil field performance monitoring methodology, sampling methods and intensities.
2. Recommend specific techniques to be used as standard methods.

A final report is expected in mid-1982 for this active project.

Level Tailings Sand Soil/Plant Research Project

Management for this project is provided by R. Fessenden of Syncrude Canada Ltd. and J. Campbell of Alberta Environment.

The objectives for this study are to:

1. Test the effect of some soil variables on woody plant performance, long and short term stability and survival of the soil/plant system.
2. Provide a base or framework for later, more detailed systematic studies.

This project is in the early planning stage. It is designed to test a number of things which have come out of earlier literature reviews in a field plot situation. The test area is to be a level area of tailings sand adjacent to the northwest corner of the Syncrude Canada Ltd. tailings pond dyke.

V. SUMMARY:

The role of OSESG in land reclamation has been to stimulate companies, with oil sands interests, to examine land reclamation concerns in the oil sands and evaluate which items require research by the group in order to obtain solutions to the problems. OSESG also has initiated research projects, supplied funding and various companies have made expertise of their employees available to the oil sands industry as a whole.

OSESG's role in oil sands land reclamation has also led to the development of a good liaison with provincial personnel. This is especially true in the case of government reclamation personnel involved with the Reclamation Research Technical Advisory Committee. The joint research project approach minimizes duplication of effort, results in pooled funds to get more work done for a given amount of dollars and provides the opportunity for government and industry experts to pool their thinking in an attempt to come up with the best solution to a problem rather than having them work in an opposing situation.

VI. LITERATURE CITED:

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INTRODUCTION

Last Spring the Provincial Government's Reclamation Research Technical Advisory Committee presented a two day Reclamation Research Seminar at the Chateau Lacombe. We were surprised by the large turnout and an overwhelming majority of those in attendance indicated the desirability of an Annual Reclamation Conference for Alberta which would focus on Policy and Practice as well as Research and which would include industry, academic and government participation.

These were very sensible suggestions though their implementation would exceed the mandate and manpower of the Reclamation Research Technical Advisory Committee. So various groups were contacted to sponsor and help organize the Conference. Positive responses were received from the Canada Land Reclamation Association (CLRA) The Alberta Government's Land Conservation and Reclamation Council, The Coal Association of Canada and The Oil Sands Environmental Study Group (OSESg).

The CLRA authorized formation of an Alberta Chapter to serve as the umbrella organization with a Program Committee consisting of representatives of the Government and the two Industry groups. Through this Conference and perhaps other functions the Alberta Chapter of the CLRA can fulfill two important roles:

1. To provide an opportunity for members of the Reclamation community to meet, exchange experiences or argue and otherwise improve communications among its industry, government and academic factions.
2. To provide a public forum for reclamation activities, capabilities, issues and challenges.

This was the first function of its kind in Alberta. Special thanks are due the Sponsors, Speakers and the other Members of the organizing Committee: Jennifer Hansen, Malcolm Ross and Al Fedkenheuer. Their talents and efforts made the Conference a success.

One final word on the Speakers: they were given very short notice of the Conference and not only responded enthusiastically but prepared presentations which were of remarkable quality and consistency. We are fortunate to have individuals of this caliber working in the Field of Reclamation in Alberta.

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Ziemkiewicz, P.F. 1982 Proceedings: 1982 Alberta Reclamation Conference, April 1982, Edmonton, Alberta Canadian Land Reclamation Association/Alberta Ch. Pub. 82-1