I. C. W. A. NEWS

and Anti Desertification Problem

No: 8

A REPORT FOR THE ANTI-DESERTIFICATION WORK
ON THE WORLD

20th Feb, 1985

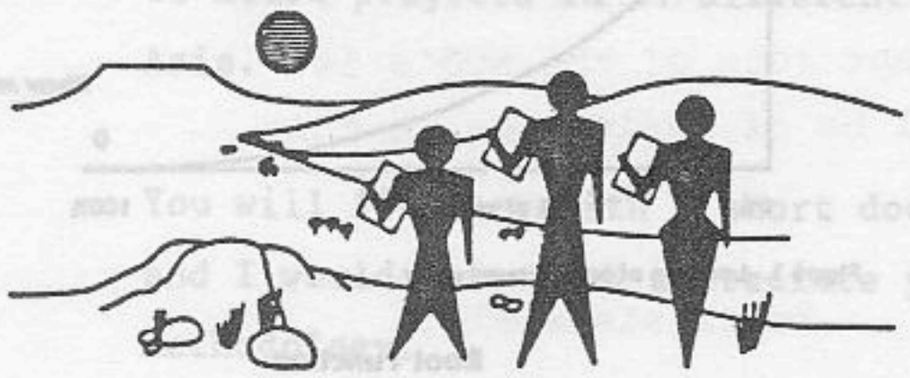
24-I2 Daymyo Ichome
Fukuoka Japan 8I0

Tatsumaru Sugiyama
General Secretary
I.C.W.A.

** HAPPY NEW YEAR & BEST WISHES FOR 1985 **

CONGRATURATION !!!

SECOND INTERNATIONAL RANGELAND CONGRESS



THE REPORT OF THIS CONGRESS
13th --- 18th May, 1984
At Adelaide University
Adelaide , Australia .

Countries.--- 47 countries, Australia, Asia, Africa, Europian, North America, South America.

Members Number--- 453 member

Organizer------- Australian Rangeland Association

Sponcer and Supporter--- Australian Scientific committee
U.N.E.S.C.O.

Mr. Tatsumaru Sugiyama who is the General Secretary of I.C.W.A. had invited from this congress, and he attended and jointed to this work of congress, and he done made up lecture that he had gat sure successed to the Anti-Desertification work for India Desertification area by recognized of Land Sates pictures in this Congress.

2ND INTERNATIONAL RANGELAND CONGRESS

As reported in ICWA News 29, out of 453 registrants from 47 countries at the 2nd International Rangeland Congress, Mr Tatsumaru Sugiyama was the only one who described successful anti-desertification work. Following a 5000 km pre-Congress tour around the margins of the Simpson Desert area, Mr Sugiyama noted that despite the large number of Commonwealth and State Government agencies whose work is relevant to desertification, there is no single coordinating agency responsible for anti-desertification work, and concluded that Australia would benefit from international collaboration.

CHANGE OF WATER LEVEL AND CONDITION OF ECOLOGY IN THE ARID AREA BY PLANTATION

Tatsumaru Sugiyama

International Culture & Welfare Association
24-12 1 Chome, Daimyo, Chuo-ku, Fukuoka,
Japan

Abstract

This paper suggests that plantations, if properly planned, can be a powerful countermeasure against desertification.

Monitoring by Landsat has shown an experimental plantation in India has changed the sub surface water level which in turn has converted a vast area of arid land into arable land.

At the present time we depend on irrigation systems as a solution to the widespread problem of desertification, but, it is applicable to only a small part of the arid area. Irrigation systems have inherent problems associated with earth works which may cause further desertification.

Our study of the desertification problem aims at the recovery of the local ecology therefore increasing the opportunity for cultivation. To this end an experiment has been conducted in India based upon the establishment of a plantation utilizing the equipment and technology of the local people.

The project area is located along the International Road connecting New Delhi, Ambara and Amritsar, in Punjab State, India. It commenced in 1963 and continued into the mid 1970's. The area was planted to Eucalyptus trees across an area of 520 km x 40 m with a tree spacing of 2-4 m.

The trees reached a height of 60-90 cm at 1 year of age and by year 4 had an average height of 12.5 m. The average trunk diameter (1 m above ground level) in the 4th year was 20 cm.

Local Ecology

Before the establishment of the plantation, rice and wheat had been grown in the valleys along rivers or wadis. Yields were poor.

In 1973 when the plantation was well established, rice could be grown in the whole area in the rainy season. Furthermore the climate and weather peculiar to India allowed three crops of rice, wheat and potatoes to be grown in rotation each year.

Landsat images collected March 3, 1973 confirmed that wadis within 10 km from plantation zone had vanished and wheat growing was possible across the whole area.

Landsat images collected April, 22, 1979 confirmed that wadis within 30-35 km from plantation zone had almost vanished. Furthermore the characteristics of the desertification process in Ambara - Ludhiana district (with plantation) were vanishing, while desertification had been aggravated in the district on the East of Ambara (without plantation).

It also became apparent that wadis in the vicinities of some villages where plantation had been locally applied also ceased to exist within 3-5 years of a plantation being established.

Factors Affecting the Success of the Project

The location of the plantation zone was established only after consideration of the geology and geography of the region.

The International Road in Punjab State connecting Ambara and Amritsar runs parallel with the Hymalayas. The 'Belt Zone of Plantation' was set up along this road so that it crossed rivers and wadis originating in the Hymalayas at right angles.

The sub-surface soil stra are:- 50-100 cm below surface : coarse sand (0.5-2.0 mm in diameter); 100-300 cm below surface : sand (<0.5-μmm) and 10-15% of clay; 300-400 cm below surface : minute particles of sand, iron and clay.

The region receives an annual average rainfall of 800 mm with a pronounced June September incidence.

The underground water flows 100-400 cm below the surface (see diagram).

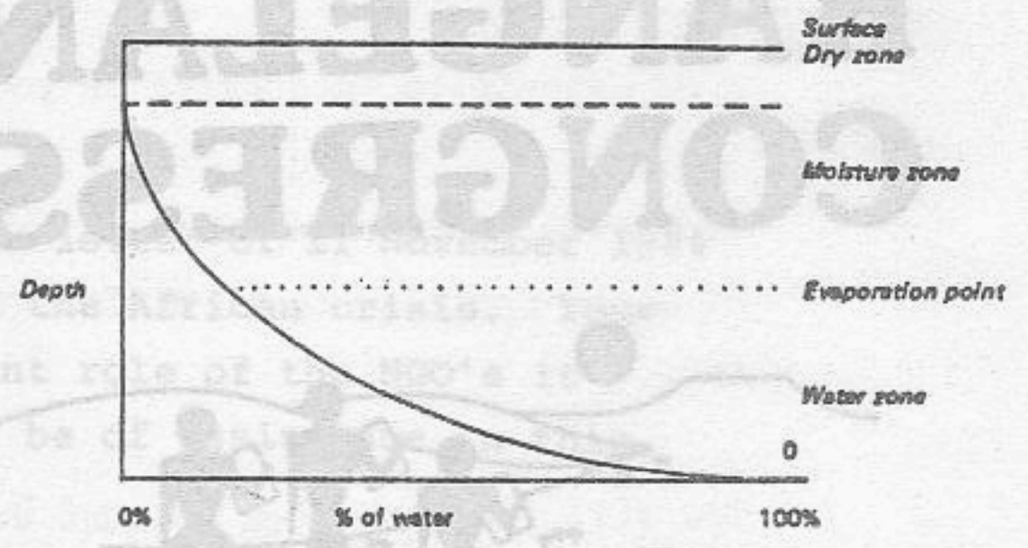


Figure 1. Location of underground water.

Root Function

Planted trees take root under the ground according to the condition of the sub-soil and underground water, and with the help of germs develop lumps of root that prevent infiltration of water.

The 'Belt Zone of Plantation' therefore provides an extension of barriers against the infiltration of underground water.

Co-operation of Local Inhabitants

Success in securing local co-operation was achieved by providing improved tools and teaching the knowhow of plantation, and then making the populace feel hopeful about the result. Under the social conditions particular to India the fact that trees they planted bring profit to themselves encouraged the people to be co-operative.

Conclusion

It took 22 years for our project to prove successful. However, we suggest that such results as mentioned can be achieved, in a project area, within a 5-10 year time span, provided that preparation is sufficient.

In conclusion, we believe that the worldwide problem of desertification can be solved by applying both measures, 'Plantation' and 'Irrigation'.

REPORT ON:

SECOND INTERNATIONAL RANGELAND CONGRESS

13-18 May 1984
Adelaide University
Adelaide, Australia

The Congress was organised by the Australian Rangeland Society and sponsored by the Australian Scientific Committee of UNESCO. A total of 453 registrants attended, representing 47 nations from Australian, African, Asian, European and North and South American regions.

Mr Tatsumaru Sugiyama, General Secretary of ICWA, attended the Congress by invitation and presented a paper on the success of his anti-desertification work in India, as demonstrated by sequential Landsat imagery. This paper evoked particular interest from representatives of developing countries, who noted firstly that their governments placed considerable importance on anti-desertification work, and secondly that Mr Sugiyama's report was the only one at the Congress which put forward solutions rather than merely stating problems.

Two issues in particular arose from the Congress:
1. There are strong contrasts between agricultural and pastoral peoples;
2. Fire is an important aspect of management in pastoral as well as agricultural areas.

The Congress promoted free and frank exchange of ideas and information, but there were some language difficulties for those whose native language is not English.

Mr Sugiyama also took part in one of eight pre-Congress tours, a 5000 km bus-camping trip from Townsville to Adelaide via Mt Isa, Middleton, Winton, Charleville, Cobar and Broken Hill, running past the north-eastern margin of the Simpson Desert. A total of 19 delegates took part, from Australia, France, Israel, Japan, UK and USA. A guide, a cook, and two Australian rangeland experts brought the total to 23. Most of the tour members were range and grassland scientists, Mr Sugiyama being the only anti-desertification worker. Mr Sugiyama's main observations from this tour were as follows.

1. Because Australia is geologically ancient, its soils, hydrology, and biota are very different from those of other continents.

2. Australian arid-zone soils generally have only shallow profile development, and are often acid. This produces unusual circumstances for desertification.

3. Other than eucalypts, Australian government agencies have generally planted only pines, whose leaf litter tends to aggravate soil acidity. Different species should be tried.

4. Except for those associated with stock grazing, there is only localised development of agricultural practices such as irrigation.

5. Australia's total population is less than that of Tokyo city (12 million), whilst Australia's total width is 23 times that of Japan. Labour costs are very high - at least A$40-45 (¥10,000) per day. Hence anti-desertification techniques must be mechanised rather than labour-intensive.

6. Australian policies are heavily oriented towards stock grazing and have not taken account of changes in range condition.

In conclusion, Australian rangeland development has produced many problems. Australians are keen to solve these problems themselves, but international collaboration could also be fruitful.

COLLABORATION IWTH UNEP AND CLUB OF ROME

ICWA has received 2 letters from the Desertification Branch of UNEP suggesting collaboration in anti-desertification work.

Mr Bertrand Schneider, Member of the Club of Rome, requested Mr Sugiyama's collaboration in the global study of anti-desertification microprojects by NGO's (non-governmental organisations). The Club of Rome was particularly interested in Mr Sugiyama's work in Peru, and ICWA has forwarded information on that project. The NGO microprojects are considered to be of particular importance as they generally involve close liaison with village communities in the third world countries involved: ICWA's work has provided an excellent example of this.

UNITED NATIONS ENVIRONMENT PROGRAMME
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT

Cable Address: UNITERRA, Nairobi
Telex No.: 22068
Telephone: 333930

P.O. Box 30552,
Nairobi, Kenya

Your Reference:
Our Reference: DES/OR 330 GEN

23 August 1984

Dear Mr. Sugiyama,

Thank you for your letter of 16 June 1984 and for a copy of your most interesting personal history. We shall keep this on file for reference.

I look forward to further co-operation between I.C.W.A. and UNEP in the combat against desertification. Thank you for your concern.

Yours sincerely,

Gaafar Karrar
Acting Head
Desertification Branch

Mr. Tatsumaru Sugiyama
General Secretary of I.C.W.A.
24-12 1 Chome Daimyo
Chuoku Fukuoka
Japan-810

THE CLUB OF ROME

Neuilly, 26th June 1984

Mr Tatsumaru SUGIYAMA
International Culture and Welfare
Association
12-24 Daimyo Chuoku
Fukuoka City
JAPAN 810

Dear Doctor Tatsumaru Sugiyama,

I would like to tell you how grateful I am having received your most interesting letter and the documents herewith.

I am especially interested in your action in Peru.

Our study is covering the whole world and missions of experts are studying 60 micro-projects in 21 different countries of Latin America, Africa and Asia.

You will find herewith a short document explaining the steps of our study and I would very much appreciate your comments and suggestions on this methodology.

With best regards.

Looking forward to reading you again.

Yours sincerely.

B. Schneider

Bertrand SCHNEIDER
Member of the Club of Rome

Encl.

Secrétariat Français 56 ter rue Perronet 92200 Neuilly-sur-Seine
tél. : (1) 637.38.80 télex : 611376

AFRICAN CRISIS

The current famine crisis in Africa has many parallels with the massive famines in India in 1963-1966. ICWA provided solutions in India in 1970, and also had experience in similar crises in China and South West Africa. The technologies developed by ICWA would also be relevant in Africa, whilst the current African crisis was due to climatic factors, the problem is long term and increasing, and particularly serious when crops in the USSR and USA are poor. Famine induced by desertification is the most serious global problem in the 21st century, and less controllable even than the threat of nuclear war. It is to be hoped that UNEP will be able to tackle the crisis, and ICWA looks forward to cooperation in the project.

UNITED NATIONS ENVIRONMENT PROGRAMME
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT

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P.O. Box 30552,
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Your Reference:
Our Reference: DES/OR.340 JAP

30 November 1984

Dear Mr. Sugiyama,

Many thanks for your letter of 11 November 1984 and for your concern about the African crisis. Your observation of the important role of the NGO's is valid and we hope you will be of assistance in this respect.

Yours sincerely,

Gaafar Karrar
Acting Head
Desertification Branch

ICWA PUBLICATIONS

ICWA has recently published a book entitled 'The Challenge of Anti-Desertification Work'. This is currently available only in Japanese.

ICWA PREPARED .

ICWA prepared to the guid book for solve to the Desertification problem that are the Plantaion way and how stop to Erosion, and take out Salt from Salinity soil of land with scietific datas of Desertification.