I. C. W. A. NEWS

SPECIAL REPORT AND INFORMATION

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HOW CHANGE ECOROGY AND STOP TO EROSION FOR THE DESERTIFICATION PROBLEM THAT ARE THE FOUNDAMENTAL POINT TO ANTI- DESERTIFICATION ACTION ON THE WORLD ?

Forword

Land of face of continets on the Earth have became 43% arid and desert zone that have 30% desert.

We have seriouce information on present of Earth that the Desertification problom are quickly development with modanize civilization.

What is phenomenon of the Desertification problem?

On the face of land, we have Phenomenon that are lost to forest, and destroy to ecology of plants, and lost safty condition of soil on land, and rise up erosion by weathering and erosive action of water, wash away of soil, and wadi rise up on river. Those soil had gone to Desert area, and it have make up desert by Accumulation action.

Those Phenomenon condition are the Desertification problem on the Earth.

Erosion Action on lost forest land are the most beginning source of the Desertification problem on the Earth.

Arround area of Desert zone have wadi river that are clear written on the maps of the Earth. And the Beginning area of Wadi have lost forest and destroy Ecology of plants, and rised up erosion action on land.

How stop to Erosion action, and How change to good ecology of Plants?

Those are the most important and common matter of the Desertification problem on all world.

The Process and Circumstances of undertaking on India about Stop Erosion and Change Ecology at Shiwalik Range

Mr. Tatsumaru Sugiyama gat agreement for establish to the Anti-Desertification technology training center on India in I976. from Mr. Kurt Waldheim who is the Secretary General on U.N., and President of India, and Minister of Agriculture on the Central goverment of India, etc.

Mr. Tatsumaru Sugiyama gave proporsal letter of the Anti-Desertification Techmology Training center of International view to Shri Morarji Desai who is the Prime Minister of India on May I977.

Shri Morarji Desai replied to Mr.Sugiyama that area of proporsal letter have so much wide area from Himalaya, Punjab, Haryana, and Rajistan states, then he decided only to the Shiwalik Range area of Punjab.

I.C.W.A. had recived invitation letter from the Punjab Agricultural University about this work on August I977, then I.C.W.A. had started resarch work to Shiwalik Range, but Dr. M.S.Swaminathan wish coraboration work with the Soil Conservation Rearch Demonstration and Training center of Chandigarh who is the Director General on India council Agriculture Resarch (I.C.A.R.) on the Central Goverment of India.

Among December 1977 -- October 1978, I.C.W.A. made up resarch work to the Shiwalik range for find out good way of stop erosion and change ecology on all condition.

I.C.W.A. choiced project area on Jainta Devi Ki Rao zone, and Sunk Valley is the Pilot Project area.

Ist July 1978, Mr. Sugiyama had call member of Kastruba Seva Mandir Trust and the Soil Conservation Resarch Demonstration and Training Center of Chandigarh, he made up meeting find out good way for teaching and exprain to the Sunk Villege peole about technology of the Anti-Desertification problem.

He showed and exprained some sample and exprained about technology of stop erosion and change ecology by people own hand, and he asked to them that were get good understand and agreement from villege people or Not.

All member have agreement to this way. It is quite possible.

All member have visited to Sunk villege on 8th July 1978, they exprained about technology of the Anti-Desertification work to Villege people, and they gat very good understand and agreement from all member of villege people.

<u>The Tests effect of technology on plantation of Sadavar plants on the most erosion area of Shiwalik range by the Soil Conservation Resarch Demonstration and Training Center of Chandigarh.</u>

I) Center of Practical Work and date
The Soil Conservation Resarch Demonstration and Training Center of Chandigarh on I.C.A.R. of central goverment of India had started test plantation of Sadavar at own project from 10th July-10th September 1978.

2) Test project place and condition of test plantation.
(Please see to map)
Place of project --- India goverment project on Sakhomajiri villege, Dist Pinjor, Haryana State

Condition ---------- (Please see picture)
-Almost 1kmxkm area of the most development erosion that have already over tope area line of the Shiwalik Range. Slowp have 30° - 45° -50° - 60° or 70° from bottom to edge of tope.
Planted Sadavar by hand on each angle of Erosion that have distance 1m-1m each, it is single line on corner of Erosion bottom.
They used Sadavar branch 15cm-25cm long that have 3 buds on branch.
Those brach number have almost 6000pice.

3) Effect of test
On 10th October 1978- All pice have complet alive and grow up 1m-1.5m high branch from orignial pice of plantation that have only lost 5-6pice, then this test have successed 99.9% on this case.
on 25th July -10th August 1979
All pice of Sadavar have good grow up on all slope of Erosion area on project.
After heavy rain, Sadavar plantation area have not any big erosion than other no plantation area, but Over 30° slope are cannt keep soil of face by water runing, forever root keep soil of orignal stratumes of soil slope, but weathering soil had run away with water, then Sadavar root go up almost 10cm high from gland of slope.

4) Consideration——— Sadavar plantation cannt keep soil of weathering on slope of erosion that have over angle of 45°. Other point of Sadavar plantation cannt stop complet to Erosion by sigle line of plantation on under 45° angle bottom area, becouse so many volum water have rush to those corner area. Those corner area need plantation of conbinetion of three or five pice Sadavar branch on good design of plantation how become weak to water rush.

Concrusion

This Sadavar plantation are the most easy technology to villege people, becouse already they use it for make up to fence of farm by them own hand.
This test have great successed, becouse we can use it on almost all India withought over 32° line of Noth Earth.
If we need more wide area plantation, we can use the Helicopter and Airo-plain and other.
But this is only one first step for stop to Erosion Action, we must plant some more good grow up trees on bottom of Erosion area.
One Example is Ucriptes and others, it shall have be quickly grow up on this area.
Then we can get complet success to stope for Erosion action on this case.
This technology shall be usefull to the Middle East and Africa countries.
Other continent and country must check up some diffrent point of plants and ecology condition on special case. I dont know that is usefull or not.
We need more study and exactry examination on this problem.

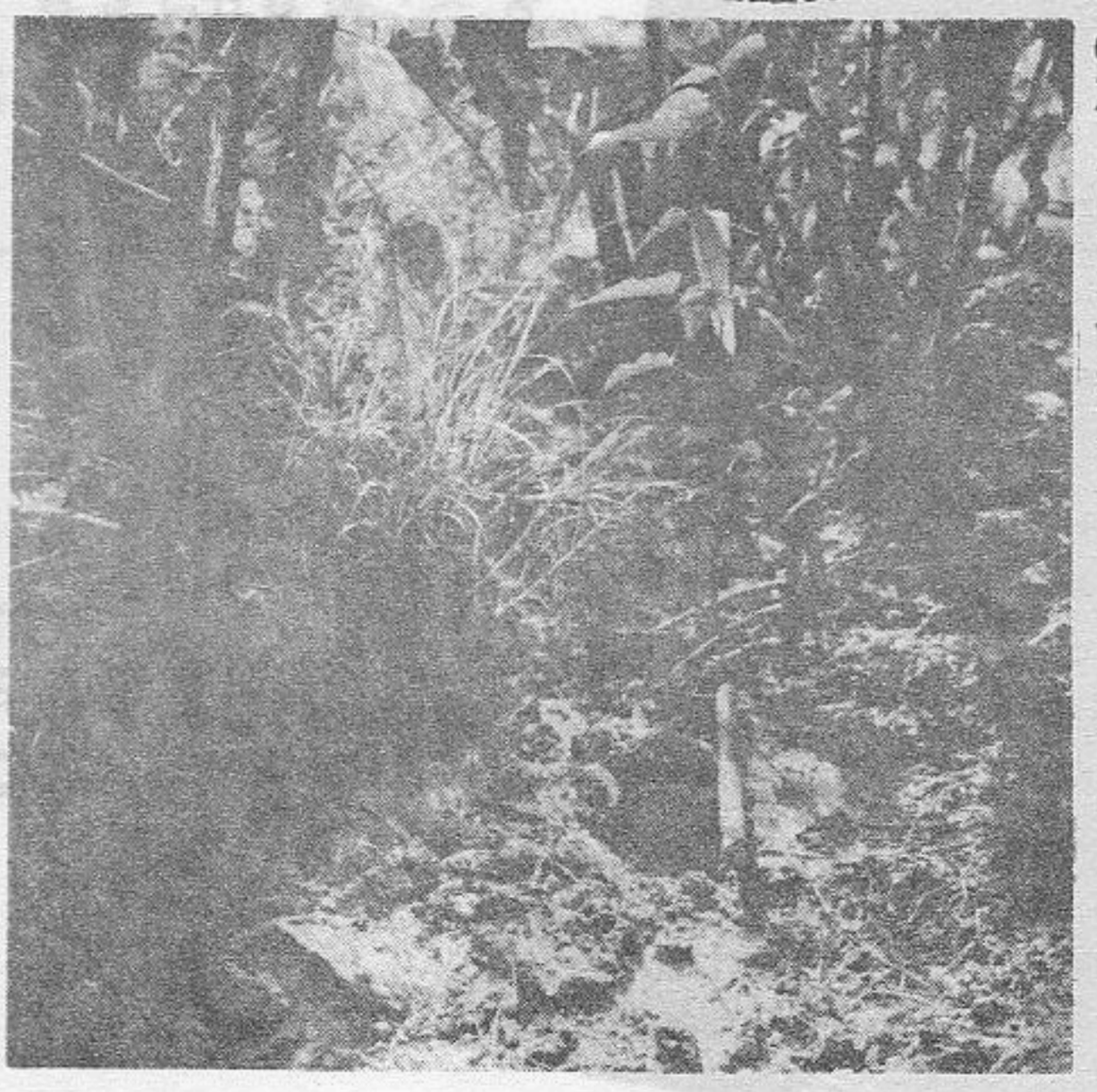
About

About SADAVAR (Scietific Name is the Epomia Calina)

Name of scientific — Eponia Calina , this plants have grow alomost 10° noth Earth line- 32° area on wild on almost India.

How used people ——— People used this plants for defence to Cattle and other Animal that are fence to aaround form and house, becouse this plants have poison to eat for cattle and animal.

What idea have India- India goverment order to people that is the anemy of agriculture, becouse this plants have very much easy grow up and development to field and water line.



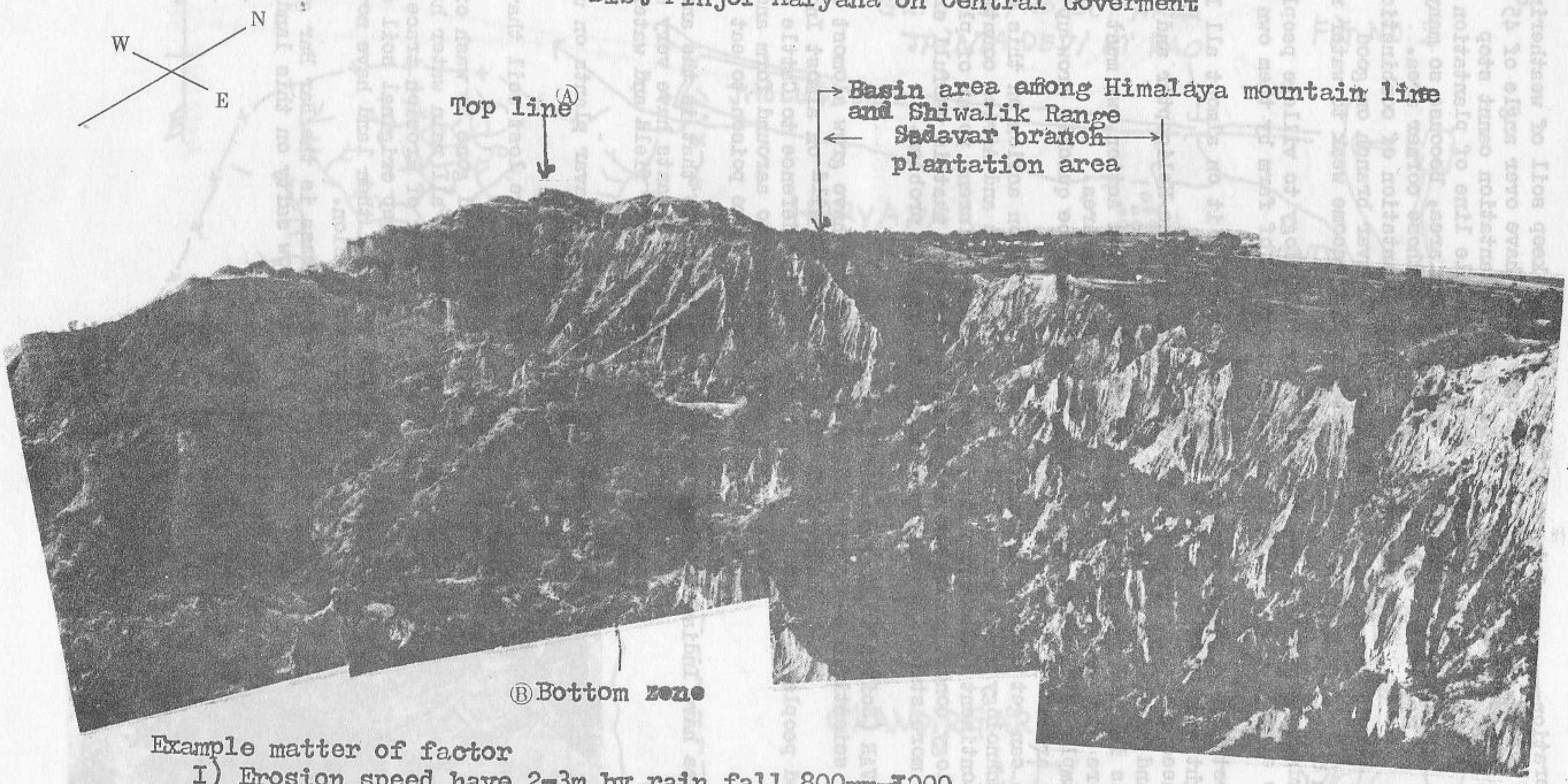
Condition of Sadavar plants on under 30° angle place

Sadavar root have lost soil that is almost 10cm.
Silt up soil had gone by wash of water, becouse all rain water had rush to corner of Erosion trace.
But Sadavar keep original soil of land by root, then land have not complet erosion.

Neighbor grass is the Bar Bar grass, it have grow safty on this land.

CONDITION OF EROSION AT SHIWALIK RANGE OF SOUTH HIMALAYA

Project area of Shokhu Majirin Villege
Dist Pinjor Haryana on Central Goverment



Example matter of factor

I) Erosion speed have 2-3m by rain fall 800mm-1000mm

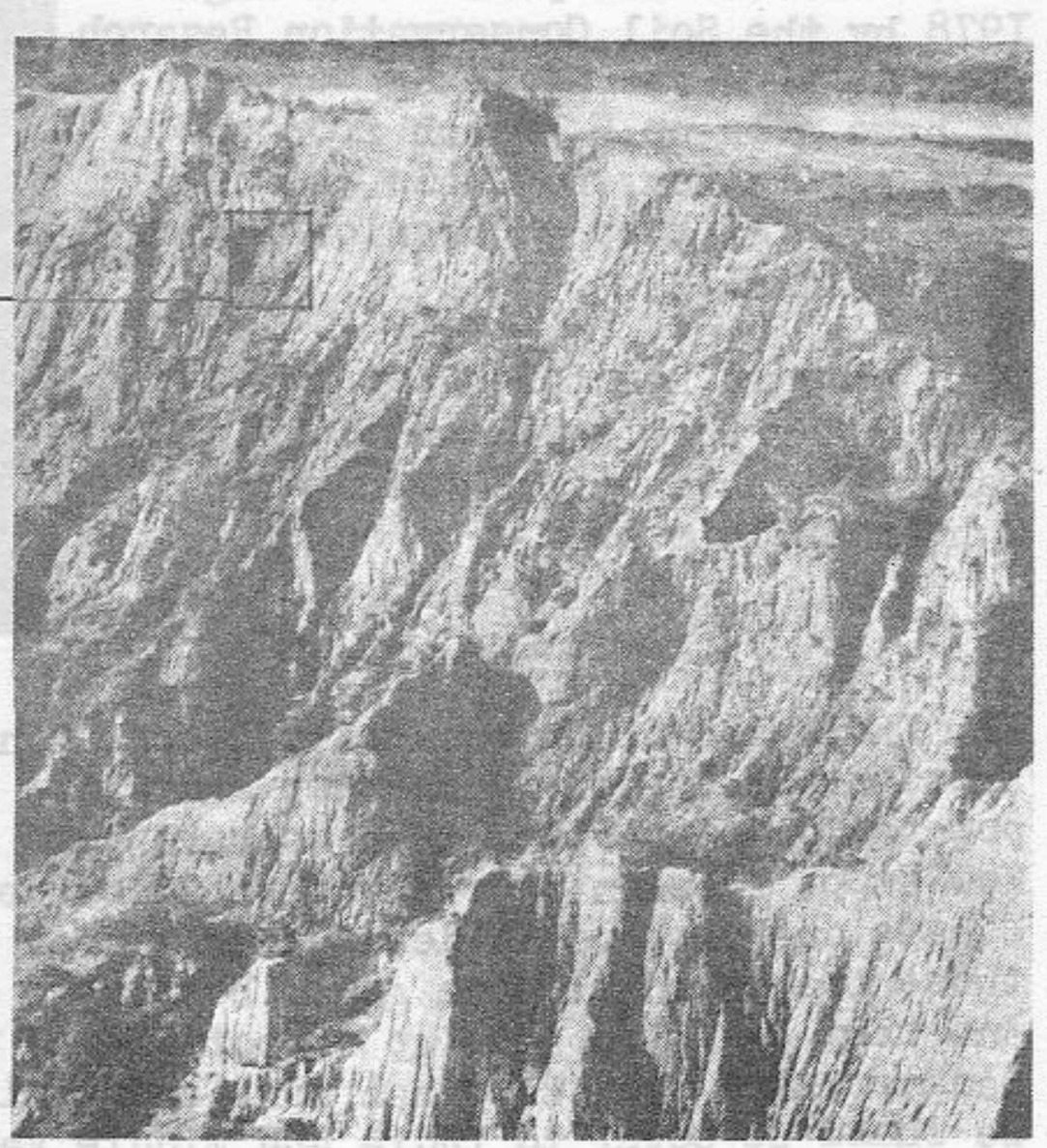
2) Soil have contain 5-15% olay that main are sand and pables(Diremater Icm-2cm) stratums, those stratum become bottom or edges of Asia Continent that have push up by the Deccan hill, it should came from South Africa to under down for Asia Continent. Those stratum hills have high 150m -400m from India plain.

3)The edges of Erosion have very much sharp slope that angle have 50°- 70°.

4) Distance among tope line(A) to Bottom line (B) have 50m

View of condition about stop erosion by Sadavar branch plantation on slope of Erosion of Shiwalik Range at the Project of India Goverment

close up picture



I) Those Sadavar had planted branchs by member of the Soil Conservation Resarch Demonstration and Training center of Chandigarh on I.C.A.R. Central Goverment

2) It is very much clear look that this plantation have stop Erosion at slope land (Angle over 45° sharp cliff). Those are make up slow speed of water, and become less lost to soil.

3) Two constract sight among this cliff and front two cliff have clear that other cliff have not development Vegtation grow up still now. Sadavar plantation have keep soil in safty, and it having new vagtable grow up in clear.

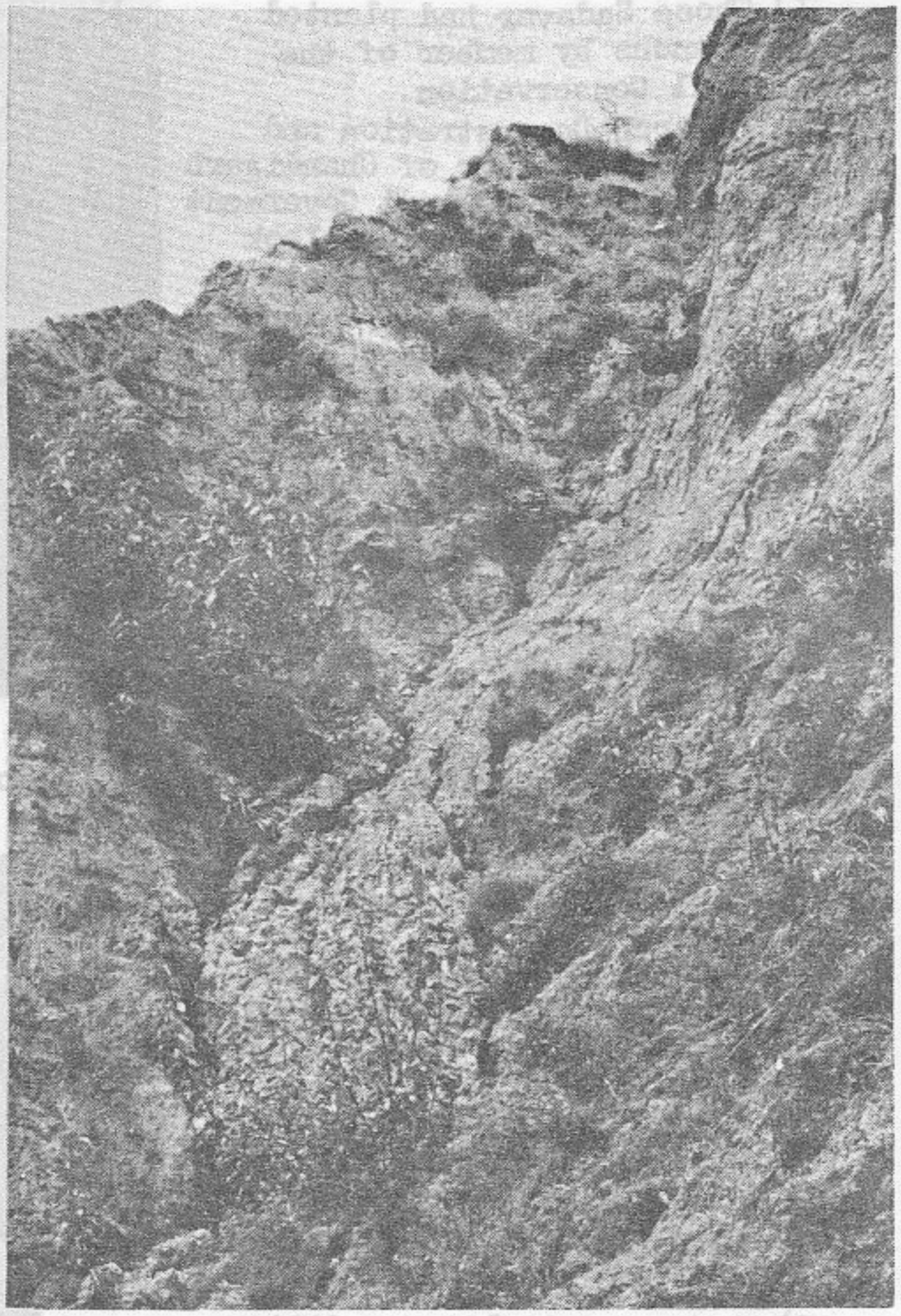
4) This plantation of Sadavar have single line plant on corner of Erosion. One branch have grow some branch among one year, but it have not keep soil in completly on this case. Then we must more care for water rush on near bottom of cliff of Erosion that we must make up more many branch of sadavar by good design.

5) We have not clear condition of conbinetion among Sadavar and other grass or trees still now, but in my test on Punjab Ucriptes trees plantation on Sadavar Area is good, and if we plant on bottom area, we shall have very good condition of stop Erosion in complely. It is true.

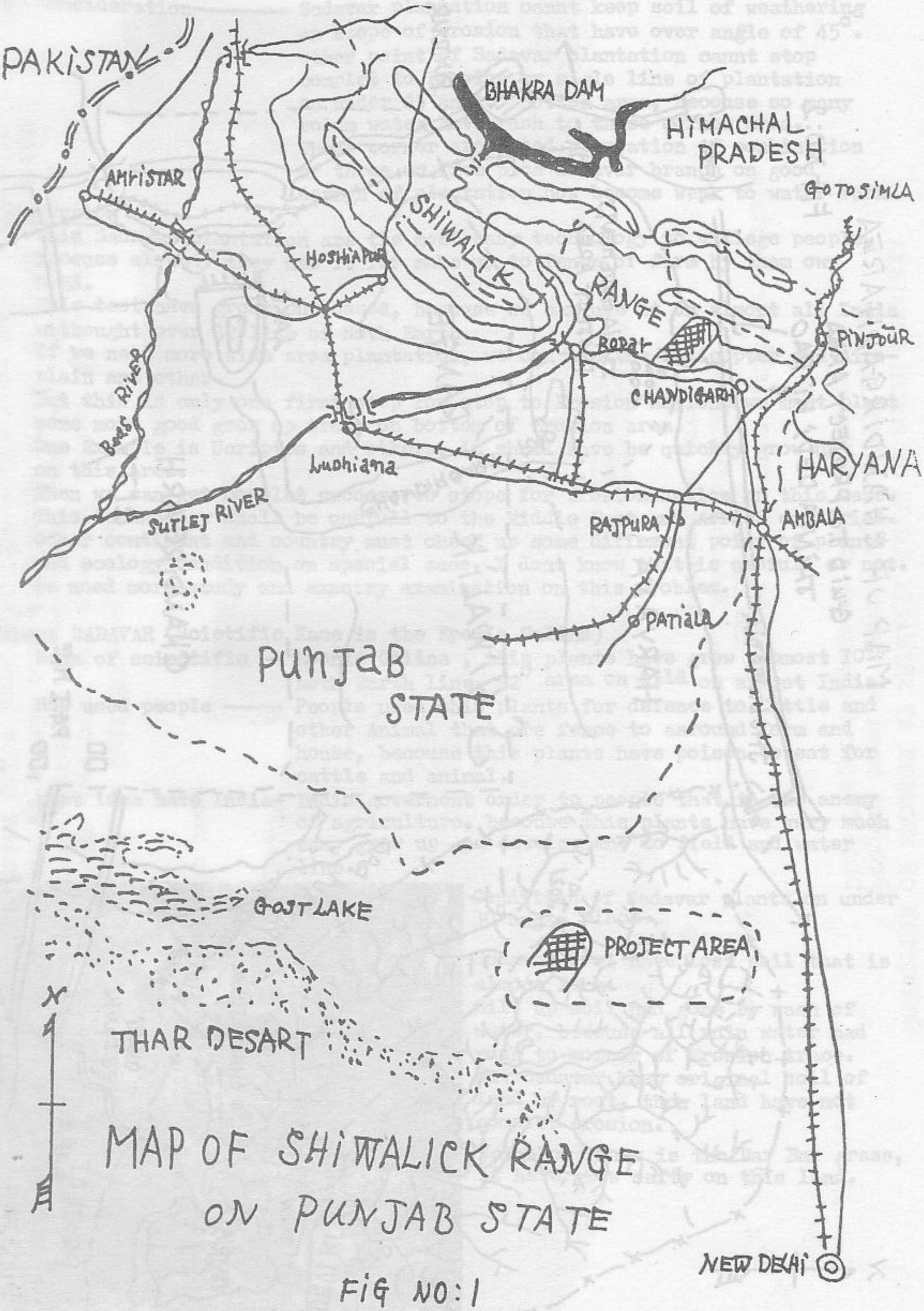
Real sight of stop Erosion by Sadavar plantation
at cliff of the Shiwalik Range

Taken this picture on 25th July I979

I)
This picture place is the West area of Sadavar plantation of project on India Goverment, it is inside corner of the most West zone of Erosions cliff.
2)
Slope angle have over 45° that.have 50°-60°, it is very much sharp, then we could not good plantation work, and each Sadavar have disitance 2m on each pice of branch.
3)
This slope have grow uo some Bar Bar grass in this picture, but this root have not deep to base land, then they could not stpp erosion action on this slope by water of rain fall.
4)
This Sadervar had planted on August I978 by the Soil Conservation Resarch Demonstraion and Training Center.
It have grow up 5 branch from one pice plantation, but this Sadavar have complet stop to Erosion Action in beautiful hill.
5)
This picture had taken after heavy rain 3 day pass on Julyst I979, this rain fall have over 300mm among 2 hour on this area.



5)
All India and other countries Desert zone have very much development area of Erosion, it is very much deep and wide. Some time those zone have not much popuration of people, then we have very much difficulty on this work.
How stppe Erosion by our work? It is the most important and difficult work.
I have one proporsal idea, we must drop Sadavar branch to Erosion area, and those branch shall have go to bottom of Erosion corner by rain fall water.
And they shall be grow up on bottom and keep soil and stop to erosion action.
Sadavar have grow tropical zone among almost I0° - 32° line of Earth, then we shall be cover to India and Middle East countries, and Africa, I think so.
Other continent area, I could not recognized that is possible or not, we need study and test for this problem.



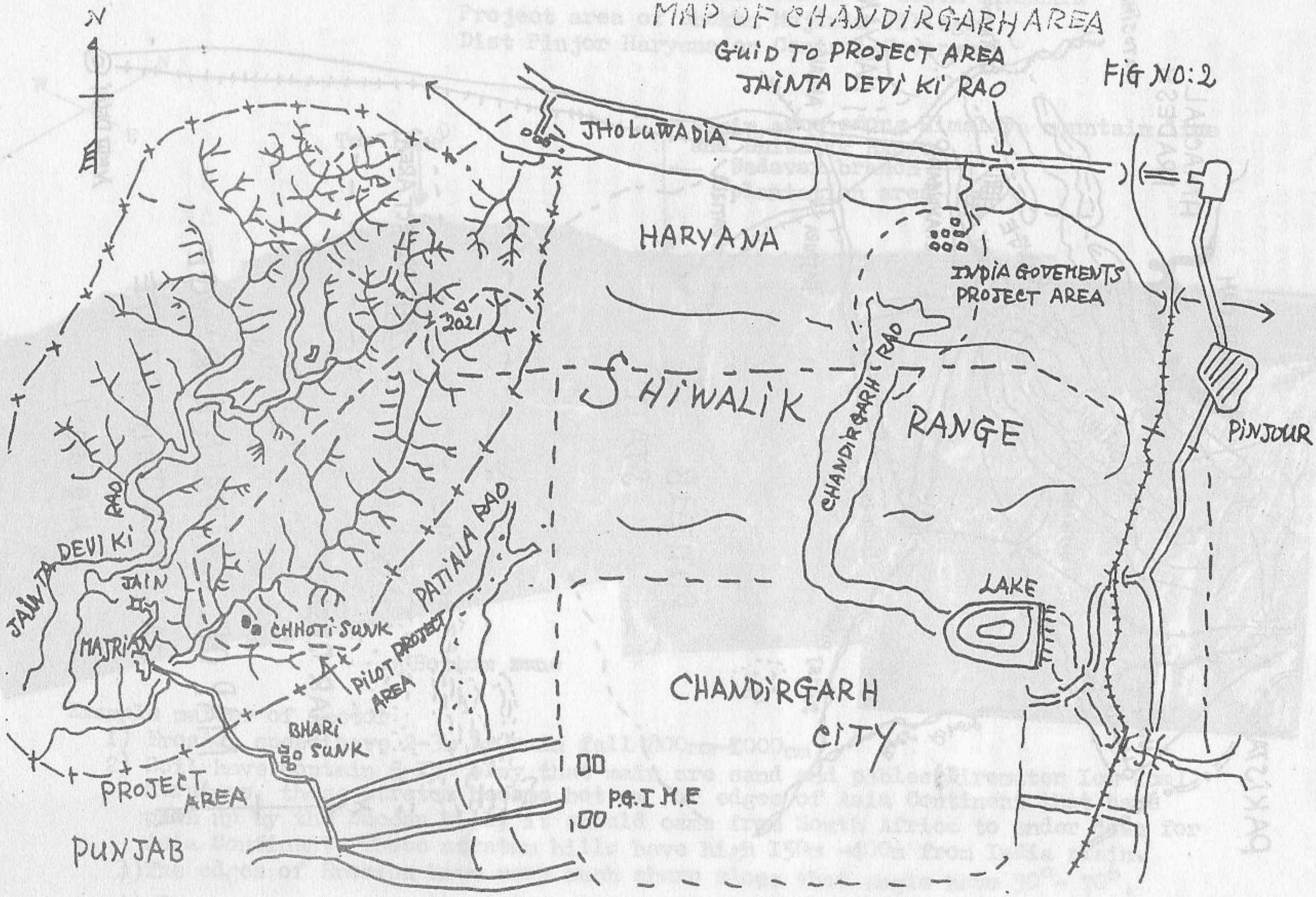
MAP OF SHIWALICK RANGE
ON PUNJAB STATE

FIG NO: 1

MAP OF CHANDIRGARH AREA

Guid To PROJECT AREA
JAINTA DEVI KI RAO

FIG NO: 2



インド中央政府I.C.A.RによるSADABARの揚水実験地域の安放要図.