Contract

between

Institute of Applied Ecology,
Chinese Academy of Sciences

and

Research Institute for Humanity and Nature
Inter-University Research Institute Corporation
National Institutes for Humanities

on

Research on the Distribution of Soil Chemistry and
Fe Dynamics in Sanjian Plain for 2005

Contract

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Research on

the Distribution of Soil Chemistry and Fe Dynamics in Sanjian Plain

for 2005

The Amur-Okhotsk Project of The Research Institute for Humanity and Nature (RIHN) hereinafter to be called CUSTOMER in the person of Prof. Yoneo Ishii, Director of Inter-University Research Institute Corporation, National Institute for Humanities, on one side, and Institute of Applied Ecology, Chinese Academy of Sciences (IAE-CAS) hereinafter to be called EXECUTOR in the person of Professor Chen Xin, Assistant Director of IAE-CAS, on the other side, concluded the present contract for the following.

1. Subject of the Contract

1.1 The CUSTOMER is to be charged with and the EXECUTOR is to be taken the responsibility for the continuation of the research project entitled "Research on the distribution of soil chemistry and Fe dynamics in Sanjian plain for 2005".

1.2 The EXECUTOR is to be responsible for following works in 2005:

- to conduct, from May 2005 to March 2006, 1) Subject 1: study on soil profile of iron and other properties with different soil types and different utilizations, 2) Subject 2: a "transect" study of soil, soil water and solute movement toward a drain ditch in the agricultural field in Sanjian plain, 3) analysis and measurement of water samples (total iron, Fe(II), other forms of Fe, dissolved organic carbon, dissolved organic nitrogen, major ions (Cl, SO_4, Na, K, Ca, Mg), Mn(II), silicate, nitrate, nitrite, ammonium, phosphate, pH, Eh) and soil samples (pH(H_2O), pH(KCl), total iron, other forms of Fe, organic carbon, organic nitrogen, total contents of other elements (Si, Al, Ca, Mg, K, Na, P, Mn), acid-soluble Mn, major ions (Cl^-, NO_3^-, SO_4^{2-}, Na^+, K^+, Ca^{2+}, Mg^{2+}, NH_4^+) from above researches.
- necessary procedures to ship the samples to CUSTOMER for specialized analyses in Japan.
- to submit the final report and analyzed data to the CUSTOMER by the end of March, 2006.

1.3 The CUSTOMER is to be responsible for following works:

- to provide necessary tools, determine methods and make observations with Chinese colleagues for the research.
- to make specialized analyses in water and soil samples in various institutions in Japan.
- to provide the Japanese members with the transportation (including payment of customs taxes) between Japan and China.
- to provide shipping cost of necessary equipments and samples between Japan and China.
- to prepare the expenses for the EXECUTOR's works noted in item 1.2.

2. Technical conditions

2.1 The program of the work noted in items 1.2 and 1.3 is given in the schedule of the Study (Supplement 1).

2.2 The period of implementation is from the time of conclusion of contract till 31 March 2006.

2.3 The EXECUTOR and the CUSTOMER are to make copies of observation records and results obtained within the framework of the work program (Supplement 1) and are to provide them to each other.

2.4 The CUSTOMER and EXECUTOR have equal rights on the results of work and are to use them for the joint investigations within framework of the Implementation Arrangement between IAE-CAS and RIHN.

3. Costs

3.1 The EXECUTOR is to provide Quotation to the CUSTOMER on expenses of EXECUTOR's works noted in the Item 1.2 prior to the conclusion of the Contract.

3.2 The CUSTOMER is to pay in US Dollars 24,162 to the EXECUTOR for the work noted in item 1.2 in accordance with the calculations for individual stage of the works, given in Supplement 2.

3.3 Japanese members who will participate in the work noted in items 1.2 and 1.3 are to pay for the following expenses (these expenses are not involved in the amount above): air, and train fares between Japan and the research fields and personal fees such as accommodations.

3.4 Expenses of the surface transportation in the local research area are to be involved in the amount above and are to be paid by the EXECUTOR.

3.5 The payment is to be made as follows:
- The first payment of US Dollars 19,330 (80 %) being just after the conclusion of the Contract;
- The second (final) payment of US Dollars 4,832 (20%) being just after the receipt of Final Report.

3.6 All payments to the EXECUTOR are transferred through the bank on the account of the EXECUTOR (See item 6) according to Supplement 3.

4. Other conditions

4.1 The EXECUTOR is to submit Final Report including all results of works before March 31, 2006.

4.2 On termination of the work at March 31, 2006, the EXECUTOR is to submit the Document about the accomplishment of the work to the CUSTOMER in two copies. The Contract is considered to be over after signing of the Document and final payment is done by both sides.

4.3 If the CUSTOMER has well based motives to reject the accomplishment of the work it has to prepare and send to the EXECUTOR list of necessary improvements, dates and conditions of their implementation.

4.4 The both sides bear responsibility for safety measures of their representatives, taking part in the field experimental works.

4.5 In case of destroying of habitable premises, devises and equipment due to natural disaster (fire, earthquake, lightning etc.) the schedule of the work and calculations are to be corrected taking into account an occurred damage.

4.6 The equipment, tools and other properties obtained for the implementation of the Contract are to be belonged to the side, which purchased them.

4.7 The CUSTOMER shall not be liable for any losses or damages occurring to the equipment belonging to IAE-CAS or for any loss, cost, injury or damages to any third party during the research activity.

4.8 The EXECUTOR shall not be liable for any loss or damages occurring to the equipment belonging to the CUSTOMER during the research activity.

5. Effective period of the Contract

5.1 The Contract is to be effective after the signing by both sides, and is to terminate at the time of signing of the Document by both sides.

6. Legal Address and Signs of sides

CUSTOMER
Research Institute for Humanity and Nature (RIHN)
Inter-University Research Institute Corporation
National Institutes for the Humanities
335 Takashima-cho, Kamigyo-ku, Kyoto 602-0878, JAPAN
Phone: +81-75-229-6188; Fax: +81-75-229-6150

EXECUTOR

Institute of Applied Ecology,
Chinese Academy of Sciences
P. O. Box 417
Shenyang 110016, CHINA
Phone: +86-24-83970318; Fax: +86-24-83970300
Bank requisites: China Bank: Shenyang subsidiary bank 60982708094014

CUSTOMER

Prof. Yoneo Ishii
Inter-University Research
Institute Corporation, National
Institute for Humanities
(Tokyo, Japan)

DD, MM, 15, 08 2005

EXECUTOR

Dr. Chen Xin
Assistant Director, Professor
Institute of Applied Ecology
Chinese Academy of Sciences
(Shenyang, CHINA)

DD, MM, 21, 07 2005

The Contract is made in two copies in English

Supplement 1

Detailed contents of "The Research on the Distribution of Soil Chemistry and Fe Dynamics in Sanjian Plain for 2005"

1. Subject (1): Study on soil profile of iron and other properties with different soil types and different utilizations

The objective of this subject throughout the entire period of project is to understand the difference in soil chemical profile with different soil types (albic soil, marsh soil, and meadow soil, etc.), different land use (natural wetland, paddy field, and upland field, etc.), and different reclamation histories in Sanjian plain region.

1) In 2005, soil sampling is to be made for a soil type with different reclamation histories and/or different land use, which addresses at least two regions with duplicate sampling per each region. (Total in 2005: 2 (+α) land type × 2 (+α) regions × duplicate = 8 +α sites)
2) Soil samples are to be collected every 30 cm basically to a depth of 5 meters if possible. (Total numbers of layers per soil profile may be 16)
3) Appropriate measures are to be carried out against sample deterioration due to oxygenation during the transportation and storage.

2. Subject (2): A "transect" study of soil, soil water and solute movement toward a drain ditch in the agricultural field in Sanjian plain.

The objectives of this subject are to study the actual situation of soil Fe discharge and the Fe dynamics in agricultural field.

1) Three profiles with different distances to a main drain ditch are selected in two locations. Soil samples are to be collected basically every 30 cm from surface in a 5 meters profile, and soil water samples from appropriate depths 3-4 times a year.
2) Measurement of the depth of ground water table at each site using surveying instruments to detect its gradient along the transect (when ground water table can be found in the profile).
3) Measurement of hydraulic conductivity of the soils around ground water depths for selected sites to quantify underground solute movement.
4) Appropriate measures are to be carried out against sample deterioration due to oxygenation during the transportation and storage.

Analytical items and treatments

1) water samples:

No.	Items	treatment	storage	detmn
1	pH	-	-	
2	Fe(II)	no filtration, in situ colorization	(Field analysis)	
3	Mn(II)	no filtration, in situ colorization	(Field analysis)	
4	Total Fe (Fe(III)+Fe(II))	filtration, then acid addition	(ambient temperature)	
5	Acid soluble Fe	acid addition, no filtration	(ambient temperature)	
6	Major Ions (Cl, SO4, Na, K, Ca, Mg)	filtration	(ambient temperature)	
7	Silicate	filtration	(ambient temperature)	
8	Nitrate	filtration	(Frozen)	
9	Nitrite	filtration	(Frozen)	
10	Ammonia	filtration	(Frozen)	
11	Phosphate	filtration	(Frozen)	
12	Dissolved Organic Carbon (DOC)	filtration	(Frozen)	
13	Dissolved Organic Nitrogen (DON)	filtration	(Frozen)	
14	Fluorescence spectra	filtration	(Frozen)	JPN
15	Size exclusion chromatogram	filtration	(Frozen)	JPN
16	Stable Isotope Ratio of Fe in water	filtration	(ambient temperature)	JPN
17	Stable Isotope Ratio of Water (Oxygen, Hydrogen)	no filtration	(ambient temperature)	JPN

2) Soil samples:

No.	Items	treatment	storage	detmn
1	pH(H2O)	-		
2	pH(KCl)	-		
3	Total Fe (Fe(III)+Fe(II))		cf. 2 - 4)	
4	Other forms of Fe		cf. 2 - 4)	
5	Organic carbon		cf. 2 - 4)	
6	Organic nitrogen		cf. 2 - 4)	
7	Total contents of othre elements (Si, Al, Ca, Mg, K, Na, P, Mn)		cf. 2 - 4)	
8	Acid-soluble Mn		cf. 2 - 4)	
9	Major Ions (Cl, NO3, SO4, Na, K, Ca, Mg, NH4)	filtration	cf. 2 - 4)	
10	Fluorescence spectra	filtration	cf. 2 - 4)	JPN
11	Size exclusion chromatogram	filtration	cf. 2 - 4)	JPN
12	Stable Isotope Ratio of Fe		cf. 2 - 4)	JPN
13	14C/12C of organic carbon		cf. 2 - 4)	JPN

Details of the analyses of water samples and soil samples, including their treatments, are to be made according to discussion between the CUSTOMER and EXECUTOR.

Shipping items to Japan:

EXECUTOR should send Nos. 14, 15, 16, 17 of water samples, and Nos. 10, 11, 12, 13 of soil samples to CUSTOMER.

Data transformation:

EXECUTOR should send all data of chemical analyses and measurements in the research activities to CUSTOMER. These data should be shared among EXECUTOR, CUSTOMER and associated researcher in China and Japan. All authorities of these data should be preserved against third parties.

Supplement 2

Calculation of "The Research on the Distribution of Soil Chemistry and Fe Dynamics in Sanjian Plain for 2005"

1.	Sampling of water and other materials		
	Wage for faculty staff ($1208/month/person x 1 person x 1.5 month)	$	1812
	Wage for faculty staff ($ 725/month/person x 1 person x 2 month)	$	1450
	Wage for graduate ($181/month/person x 2 person x 10 month)	$	3620
	Wage for graduate ($121/month/person x 2 person x 2 month)	$	484
2.	Travel expenses and others		
	Transportation (Shenyang-Tongjyang-Fuyuan 5 times)	$	1,305
	Accommodation	$	566
	Compensation fee for the resource	$	604
3.	Analytical devices		
	GPS and analyzer for soluble Oxygen	$	5,162
4.	Consumption material		
		$	4,442
5.	Chemical analyses		
	Fe (368 sample)	$	2,223
	Cation (144 sample)	$	870
	Anion (224 sample)	$	1,624
Total			
		US$	24,162

Supplement 3

Document

on the cost of work

According to the Contract between IAE-CAS and RIHN for 2005

Project title: "The Research on the Distribution of Soil Chemistry and Fe Dynamics in Sanjian Plain for 2005".

We, undersigned Prof. Yoneo Ishii, on behalf of the Inter-University Research Institute Corporation, National Institute for Humanities, hereinafter to be called CUSTOMER, on the one side, and Prof. Chen Xin on behalf of Institute of Applied Ecology, Chinese Academy of Science, hereinafter to be called EXECUTOR, on the other side, concluded the agreement about the cost on the above mentioned research in sum in US Dollars 24,162 (Twenty four thousands one hundred sixty two).

This Document is the basis for the calculations and payments between CUSTOMER and EXECUTOR.

CUSTOMER

Prof. Yoneo Ishii
Inter-University Research
Institute Corporation, National
Institute for Humanities
(Tokyo, Japan)

DD, MM, 15, 08 2005

EXECUTOR

Dr. Chen Xin
Assistant Director, Professor
Institute of Applied Ecology
Chinese Academy of Sciences
(Shenyang, CHINA)

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