Soil and Water Analysis Lab

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Concept:

The Soil and Water Analysis Lab of KUFOS is a state of the art facility offering analytical services to farmers and common public in terms of water quality. We are receiving a lot of water samples from aquaculture farmers requesting us to analyse the samples for salinity, pH, dissolved oxygen, ammonia etc which are essential parameters as far as the aquaculture farmers are concerned. Sicne we have anaysed a lot of samples in connection with 2018 floods (well waters), public is approaching us to analyse the well water samples so as to assure the quality of the drinking water (mainly for pH, hardness, salt content etc). This is generating income to the university and the rates for the same has been fixed by the university and the amount is remitted at the finance wing of the university with proper receipts and documents kept in the lab.

We also have demands from research scholars from outside so as to help them in analysing samples (mainly related to environmental analysis). **The major means of income generation in this lab is Post graduate dissertations from colleges as well as summer internships from universities. The current rate of one month programme is 10,000 + GST (per student).** As per the expertise of the Principal Investigator (Dr.Anu Gopinath), students are registering from Analytical Chemistry, Pure Chemistry and Environmental Science/Chemical Oceanography background. The P.G students (M.F.Sc) KUFOS working under different faculty members is utilizing the lab for water quality analysis as part of disserations. The post doctoral fellows working in School of Ocean Science and Technology have also used the lab facility.

KUFOS is having a KUFOS-INCOIS (Indian National Centre for Ocean Information and Services, Hyderabad) centre at KUFOS which is fostering joint research works between the two organizations in projects related to coastal monitoring in off Kochi waters (South Eatsren Arabian Sea (SEAS). In addition to this buoy management for ocean forecast by INCOIS is done by KUFOS researchers through joint collaborative projects. Soil and Water analysis lab is utilised in this monitoring work and the payment for the same is carried out as overhead charges to the institution (**2, 00,000 lakhs paid for the last two** years) in addition to the contingencies amount spent for chemicals and gases. Our students are also getting a chance to be a part of these projects in their Master's disserations. Four students have successfully completed Master's dissertations (M.F.Sc) as part of the INCOIS funded project which was operated through this lab.

Major Objectives:

1. **Offer analytical services to aquaculture farmers and public in terms of water quality of ponds and wells (payment basis).**
2. **To encourage project/dissertation enrollment by studnets from colleges and universities.**
3. **Also, we encourage summer internships through prestigious fellowships (UG and PG).**
4. **To offer analytical services to research scholars from outside (payment basis).**
5. **Also, to provide opportunity to in- house candidates who are seriously working on environmental pollution aspects expecting a majorscientific output.**

After the devastating flood in the state, Kerala University of Fisheries and Ocean Studies (KUFOS), Panangad has collected from **different places of Kerala. This lab has done extensive sampling from dirrerent districts in Kerala and cmaps were conducted for the general public so as to analyse the water quality of well waters immediately after the flood. In addition to in-situ smapling we have collected smaples in our lab from different places and we could successfully do around 5000 samples** (it was onde free of cost as per the direction of former Vice Chancellor, with the support of GC, KUFOS).

We are receiving a lot of water samples from farmers in order to get analysed for water quality. Their demands include analysis of pH, dissolved oxygen, slainity, hardness and nutrients.

Hence we are Delivering water quality analytical services to aquaculutre farmers.

Every year a large numer of students enroll for their project works as part of M.Sc dissertations and for the last two years we are charging around 10,000 / student as project fees for duration of one month. **Project enrollment by students from collegers across the state is a major income for the lab.**

In addition to that, M.F.Sc students of KUFOS working on environmental aspectes also utilise the facility of Soil and Water analysis to do water quality analysis (free of cost).

Through this lab we are invited to collaborate with agencies like INCOIS through externally aided projects. Through this lab KUFOS is fostering joint research works between the two organizations in projects related to coastal monitoring in off Kochi waters (South Eatsren Arabian Sea (SEAS).

Sl.	Instrument	Make	Model	Serial Number
1	ICP-OES	Perkin Elmer	OPTIMA^{TM} 8000	07851601936
2	TOC Analyzer	SCALAR	2CA16910 (FORMACS^{HT}) 2MC10900 (PRIMACS ^{MCS})	16278 15153
3	UV Visible spectrophotometer (DST Fast Track Scheme funded)	Thermo Fisher Scientific		5A4R361009
4	Fluorescence Spectrophotometer	JASCO, FP -8300	FP-8300 WRE	C 046661450
6	Accelerated Solvent extractor	SOCS PLUS	SCS-8	S-186
7	Deep freezer-86	HAIER	DW-86L490J	BEOFS4GITOOQGHIC0003
8	Deep freezer – 20	BLUE STAR	CHF100C	CHF100CE14C02763
9	Rotary Evaporator with Chiller	IKA	RV10D396	
10	Muffle Furnace	KEMI	KMF2	1097
11	Hot Air Oven Hot Air Oven	ROTEK LABLINE	 MH053	15176 17C305
12	Lyophiliser	ILSHIN BIO BASE	FD5508	JH3127

Soil & Water Analysis Lab

Major Instruments

UV Visible Spectrophotometer (Thermo) funded by DST

ICP-OES for Trace metal Analysis , Perkin Elmer

Fluorescence Spectrophotometer (JASCO)

TOC Analyzer (Skalar)

Cooling Centrifuge

Oven , Muffle Furnace

Lyophilizer

Rotary Evaporator

Accelerated Solvent Extractor (funded by KSCSTE)

Deep Freezer -80 C

Sl No	Year	Analytical Services and Student Projects (M.Sc Chemistry Projects)	EAP Overhead charges (INCOIS)
1	2017-2020	7,60,000 /-	2,00,00/-