

# ERUDITE 2019



## *Report On*

**SCHOLAR IN RESIDENCE PROGRAMME UNDER ERUDITE SCHEME**  
Lecture Series and Interaction with Students/ Research Scholars/ Faculty Members

by



**DR. BERT ENSERINK**

*Faculty of Technology Policy and Management, Delft University of Technology,  
The Netherlands*

*Sponsored by Kerala State Higher Education Council, Organized by Division of Civil  
Engineering, School of Engineering, Cochin University of Science and Technology*

**DATE: 4 – 9, February 2019**

*Submitted By: Dr. Subha V, Professor, Erudite Programme Division Co-ordinator, SOE,  
CUSAT*

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## Day wise Activity of Scholar-in-Residence Programme

### 03-02-2019, Arrival Day

Dr. Bert Enserink, Faculty Member, Delft University of Technology, The Netherlands was received in CIAL Airport by Dr. Benny Mathews Abraham, Senior Professor, Div. of Civil Engineering and Dr. Subha V, Erudite Programme Division Co-ordinator.



Afternoon, Dr. Bert visited Dhishna –TechFest(1-3, Feb,2019) conducted by SOE Students of CUSAT. Dr. Subha briefed the programme schedule. and thereafter had discussion with research scholars

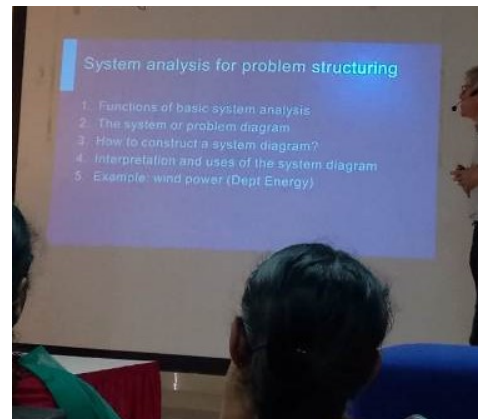


**DAY -1, 04-02-2019**

## **Erudite Scholar in Residence programme – Inauguration**



Dr. R. Sasidharan, Vice Chancellor - in - Charge, Cochin University of Science and Technology has inaugurated the Erudite Scholar in Residence Programme in Seminar hall-1, of School of Engineering, CUSAT. Dr. M.R.R Panicker , Principal, School of Engineering, presided over the function. Dr. P.S Sreejith, Dean , Faculty of Engineering felicitated the function.



The function was followed by Erudite Lecture on the topic ‘Using a systems approach to analyse and structure complex problems’. After the Coffee Break, Research scholars and faculty members interacted with the Erudite Scholar based on the abstract of the topic sent to the scholar prior to his visit.



Interaction with B.Tech students, M.Tech Student & PhD student



With faculty member Sri Arun Kumar, Dr Job and his Research Scholar

**At 4 pm**, on the same day, meeting with Sri. Vinodkumar P P, IRAA Director, CUSAT, Discussion on possible Collaboration between CUSAT & Delft University of Technology, The Netherlands. Dr. Jayadas, Division of Mechanical Engineering, Dr. Glory Joseph & Dr. Subha V, Div of Civil Engineering, Dr. Santhosh, Computer Science department were present in the meeting.



### **DAY -2, 05-02-2019**

Day started with the visit of Erudite scholar to Civil Engineering Division and interaction with faculty members. After coffee Scholar delivered lecture on 'Public participation in River Basin Management in The Netherlands. (Not) Everybody's concern'. Bachelor students were very much enthusiastic to have discussion with Dr. Bert on the recent flood in Kerala. He explained the concept of '**Room for River**', being practiced in The Netherlands, Land below sea level.



The talk was followed by discussion and interaction with bachelor and master students and research scholars.



Interaction with faculty member Dr. James Varghese , Mechanical Engineering Department & Dr. Abdu Rahiman, Civil Engg Dept.



Interaction with Students after the talk

At 3 pm, Dr. Bert visited **Department of Environmental Science, CUSAT**. Session started with interaction with Dr. Sivandan Achari , Director, School of Environmental Studies and other faculty members and research scholars. He delivered lecture on EIA and Public Participation’.





### DAY -3, 06-02-2019

Dr. Bert visited School of Management studies, Dr. Sam Thomas, Dr M. Bhasi and other faculty members received Dr. Bert. The day started with interactive session with students, faculty members and research scholars about various topics. Session began with discussion on the latest researches in Netherlands. He highlighted the benefits of introducing case-based curriculum in management studies. Prof. emphasized the importance of the opportunity to meet other researchers and consulting them to improve the quality of one's own research. The interaction with Prof. was a motivation for the research scholars who are facing multiple challenges in their research path



At 3 pm, Dr. Bert delivered lecture on Research Methodology, in **School of Engineering Seminar Hall -2**, for research scholars. Since information about the talk was given through media, about 100 research scholars participated in the session from in and around Kochi city. He explained the system followed in Netherlands related to review of Related Literature, Plagiarism, Citing Scholarly Works, Enhancing Research Ideas, and Writing Thesis etc. It was mostly a question answer session; He interacted with research scholars and answered their questions.



### DAY -4, 07-02-2019

Dr. Bert visited, Kerala University Of Fisheries & Ocean Studies. The programme started with the inaugural session on 07 February 2019. Dr. A Ramachandran, Hon'ble Vice Chancellor, KUFOS initiated the programme with an introduction about the Dr. Bert. Dr. T.V. Sankar, Director of Research, KUFOS welcomed the gathering and Dr. V.M.Victor George, Registrar proposed the vote of thanks. Dr. Balchand was also present in the function.



Dr. Bert delivered lecture on *Climate policy & Coping with Uncertainty*. He discussed on the impact of climate changes, the uncertainties to be considered and the way the understanding or misunderstanding of facts is conceived by the policy makers in dealing with the situation.



He gave the students insight into the climate change issues quoting the Netherland as an example. In, noon, had interaction with research scholars and faculty members of KUFOS and discussed about future collaboration possible between he universities.



## DAY -5, 08-02-2019

Day 2 in KUFOS, started with interaction with senior faculty members, followed by his visit to different faculties and interaction with post graduate students of the University. This was an interesting experience for both Dr. Bert and the students. The students of the Experiential Learning Programme of the Master of Fisheries Science explained their activities to the visiting professor.



The afternoon session started with a lecture by Dr. Bert again on *Public participation in EIA for project appraisal*. He discussed about public participation in the environment impact assessment for project appraisal and mentioned that in Netherlands water and river basin management system was given more emphasis in Netherlands. A country with over 27% of the land is below sea level, the dams controlled the flow-in and flow-out of water as well as provided better breeding ground for many species. The defense barriers in river system provides a sense of safety to the people by effectively controlling the chance of sudden flooding. He also mentioned about the protocol for impact assessment studies taking A4 Delft- Schiedam (Rotterdam metropolitan area) as an example. The talk evoked lot of response from the participants. In the concluding session, Dr. T.V.Sankar briefed on the programme and Dr. Bert discussed in experience on his two day visit to KUFOS, Kochi. Dr. V. Subha, Professor in Civil Engineering, School of Engineering, Cochin University of Science and Technology, Cochin and the Co-Ordinator of the Erudite programme, CUSAT shared their views in the programme in general. Dr. V.M.Victor George, Registrar Gave the final remark and closed the programme after presenting a memento of love and appreciation to Dr. Bert.



## DAY -6, 09-02-2019

The day started with further interaction with research scholars of School of Engineering. Afternoon, the programme was concluded . One week programme was concluded with sincere gratitude to Kerala State Higher Education Council, Govt. of Kerala for the support for providing the opportunity to conduct the programme. Students, research scholars and faculty members of not only school of Engineering, but also inter departments of CUSAt school of management studies, School of Environmental studies were also benefited. Again, Students, faculty members and research scholars also benefited from this programme for a greater extent. In addition, research scholars of various institutions in and around the city also benefited with the interactive session held on the topic research methodology.



Interaction with PhD students of Civil and Mechanical Engg, Concluding Remarks

**The programme came to an end at 4 pm.**

## PROGRAMME SCHEDULE - ERUDITE 2019



**SCHOLAR IN RESIDENCE PROGRAMME UNDER ERUDITE SCHEME**  
 Lecture Series and Interaction with Students/ Research Scholars/ Faculty Members  
 by



**DR. BERT ENSERINK**

*Faculty of Technology Policy and Management, Delft University of Technology,  
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 Engineering, School of Engineering, Cochin University of Science and Technology*

**DATE: 4 - 9 February 2019**

*Erudite lecture series in other departments and universities*

04-02-2019 &

05-06-2019 @ School of Engineering, CUSAT

05-02-2019 @ 3 pm, School of Environmental Studies, CUSAT

06-02-2019 @ School of Management Studies, CUSAT & SOE, CUSAT

07-02-2019 @ Kerala University of Fisheries and Ocean studies (KUFOS)

08-02-2019 @ Kerala University of Fisheries and Ocean studies (KUFOS)

**About Erudite:** Erudite, the scholar- in- residence programme conceived by the State Higher Education Council, Govt. of Kerala invites renowned academicians and Nobel Laureates from within the country and abroad to the universities in Kerala. They deliver popular lectures on topic of their expertise and interact with students/ research scholars and faculty members. This is a

flagship programme of the Govt. of Kerala to inspire the young aspirants. CUSAT has invited several scholars to its campus under this programme.

### **About Erudite Professor**

Dr. ir. Bert Enserink, is associate professor, Faculty of Technology, Policy and Management (TPM), Delft University of Technology, The Netherlands. He has extensive experience in teaching, research, facilitation and consultancy. He is currently the director of education of the international and interdisciplinary master program on Engineering and Policy Analysis in The Hague. He has been co-initiator and manager of the re-location of the EPA master program to The Hague and responsible for co-designing and implementing its new blended, case-based curriculum. Currently he teaches courses on multi-actor systems analysis for both bachelor and master students, intercultural relations and project management and master thesis preparation. He has a track record of educational innovation: introducing video in the classroom, has been one of the leaders of the TU Delfts open and online learning projects and implemented online and blended learning in the EPA program and participated in MOOCs on creative problem solving. His main areas of expertise are in the field of public participation and stakeholder management, quick scan and rapid appraisal techniques, and scenario analysis. Main fields of application are in natural resources management, urbanization, coastal zone and river-basin management. He has extensive international experience in India and China and participated in Dutch and EU funded (evaluation) projects on public participation in river basin management in Europe, sustainability impacts, and the implementation of the European Water Framework Directive. Recent research projects focused on combining different participative methods and social learning techniques for understanding technical and natural systems and for designing adaptive management policies. Recent projects include scenarios and adaptation strategies for the Noord-Oost Polder in the Netherlands, facilitation of workshops in Jinan and Kunming on public participation in environmental impact assessment as part of the EU's Environmental Governance Program and facilitation of the scenario workshop "Futures Planning for the Restoration of Ecosystem Services through Participatory Nile Basin Scenario Construction" commissioned by NBD and its follow up at conferences and master classes (with NBI) in Kenya and Uganda.

***For Details – Dr. Subha V, Professor, SOE, CUSAT, Ph.No. 9447292584***

***Email. Id : [v.subha@cusat.ac.in](mailto:v.subha@cusat.ac.in), [subhakamal@gmail.com](mailto:subhakamal@gmail.com)***

**Scholar-in-Residence Programme under Erudite Scheme**  
**Lecture Series and Interaction with research scholars/ students/ faculty members**

by

**DR. BERT ENSERINK**

**Faculty of Technology Policy and Management, Delft University of Technology,  
The Netherlands**

**PROGRAMME**

**03-02-2019**

- |                 |  |
|-----------------|--|
| <b>11.00 am</b> | <b>: Arrival at Hotel</b>  |
| 2.00- 2.30pm    | : Introduction of programme and programme<br>Schedule –Dr. Subha V |
| 2.30- 3.30 pm   | : Interaction with Research Scholars                               |
| 3.30-4.00       | Visit to Dhishna- TechFest of SOE, CUSAT                           |

**04-02-2019, Venue – Seminar Hall-1 , SOE, CUSAT**

- |   |  |
|---|--|
| <b>9.30 am – 10.00 am</b>   | <b>: INAUGURAL FUNCTION</b>  |
| 9.30 Invocation   |  |
| 9.35 Welcome  | : Dr. Glory Joseph, Head, Div. of Civil Engineering,<br>SOE, CUSAT                   |
| 9.40 Introducing Erudite Scholar &<br>About the Erudite Programme | : Dr. Subha V, Div. Co-ordinator, Erudite<br>programme                               |
| 9.45 Presidential Address   | : Dr. M R R Panicker, Principal, SOE, CUSAT  |
| 9.50 Inauguration& Inaugural address                              | : Dr. R. Sasidharan, Vice Chancellor,<br>Cochin University of Science and Technology |
| 10.00 Felicitation  | : Dr. P S Sreejith, Dean, SOE, CUSAT   |
| 10.05 am -10.20 am  | : Coffee Break   |
| 10.20 am -11.15am   | : Talk on ‘Using a systems approach to analyse                                       |



and structure complex problems’

11.15am -12.15pm : Interaction with Research Scholars & Guides

2.00pm – 3.00 pm : Interaction with Research Scholars& Guides

3.00pm - 3.45 pm : Coffee Meeting & Interaction with faculty members

4.00 pm : Meeting with IRAA Director, CUSAT Discussion on Possible Collaboration between CUSAT& Delft University of Technology, The Netherlands

### **05-02-2019, Venue – Seminar Hall-1, SOE, CUSAT**

9.00 am : Visit to Division of Civil Engineering, Interaction with faculty members

9.30am- 10.30am : Talk on ‘Public participation in River Basin Management in The Netherlands. (Not) Everybody's concern’

10.30am-10.45am : Coffee Break

10.45am- 12.00pm : Interaction with B.Tech & M. Tech students/ faculty members

2.00pm -2.45 pm : Interaction with faculty members of other Divisions of SOE

2.45pm : Coffee Break

**3.15pm : Visit to Environmental Science Department, CUSAT**

3.30 pm : Talk on ‘EIA and public participation’

4.00 -4.30pm : Interaction with Research scholars

7.00 pm : Dinner meeting with KSHEC representative  
Mr. Shefeeque V, Research Officer.

### **06-02-2019, School of Management Studies, CUSAT**

09.30 am : Interactive session with faculty members : Topic: General, the structuring of the management programme in Delft University, Innovations in management teaching etc.

10.30am : Interaction with MBA students: Topic: Social and

- environmental impact analysis with respect to Infrastructural projects. tools, approaches, examples
- 2.00 pm : Interaction with Research Scholars: Topic Action research, participate research, emerging techniques in qualitative research
- 4.00 pm : **Seminar Hall -2, School of Engineering, Talk on 'Research Methodology'-Review of Related Literature, Plagiarism, Citing Scholarly Works, Enhancing Research Ideas, Writing Thesis**

**07-02-2019, Kerala University of Fisheries and Ocean studies (KUFOS)**

- 10.00 am : Inaugural Function
- 10.30 am : Coffee Break
- 10.50 am : Talk on 'Climate policy & Coping with Uncertainty'
- 12.30 pm : Interaction with Research Scholars/research Guides
- 2.30 pm : Interaction with Senior Faculty members

**08-02-2019, Kerala University of Fisheries and Ocean Studies (KUFOS)**

- 10.00 am : Discussion with Senior Officials on Possible Collaboration between KUFOS & Delft University
- 11.30pm : Visit to KUFOS Schools/ Departments
- 2.30 pm : Talk on 'Public participation in EIA for project appraisal'
- 3.30pm : Coffee Break
- 4.00pm : Concluding Session

**09-02-2019, Venue – Seminar Hall-2, SOE, CUSAT**

- 10.00am -1.30 pm : Interaction with Research Scholars
- 2.00 pm : Concluding Session
- 3.00 pm : Coffee Break
- 4.00 pm : Farewell

**SCHEDULE OF INTERACTION WITH RESEARCH SCHOLARS/  
STUDENTS/FACULTY MEMEBRS**

DATE	TIME	NAME OF RESEARCH SCHOLAR	Topic
03-02-2019	2.30-3.00	Ms.Tintu Joy	Sustainable Water Management
	3.00-3.30	Lekshmi M S	Sustainable Materials
04-02-2019	11.15-11.35am	Mr.Rijesh	Sustainable Planning
	11.35-11.50am	Ms Meera	Sustainable Materials
	11.50-12.15pm	Mr. Harilal	Sustainable Materials
	2.00-2.20pm	Ms. Bindu	Effective rehabilitation and revitalization of fishermen communities
	2.20- 2.40pm	Mr. Robert	Sustainable Materials
05-02-2019	11.15-11.35am	Mr. Muhammed Shahi	M.Tech Project Discussion - Sustainable Development Of Water Supply @ Kochi
	11.35-11.50am	Ms. Rajalekhmi	M.Tech Project Discussion-Sustainable Materials
	11.50-12.15pm	Mr. Thankachan	M.Tech Project Discussion-Planning Surface Drainage System In A Town, Kothamangalam
	2.00-2.20pm	Dr. James , Mechanical Engg.Div	Energy Management
	2.20- 2.40pm	Interaction with B.Tech Students of Mechanical Division	
09-02-2019	9.30-10am	Mr. Asif	Mechanical Engg. Department-Bio-Physics, Study prospects in TUD
	10-10.45	Ms. Kavitha	Sustainable Urban Drainage
	11.15-11.45	Ms. Geeja	Sustainable Water Management
	11.45-1.30	Dr. Subha	Research Activities In TUD And CUSAT

## Academic Outcome & Discussion with Research Scholars

### Academic Outcome

Visit of Dr. Bert Enserink, Faculty of Technology, Policy and Management, Delft University of Technology was organised as per the guidelines of the Erudite Scholar in Residence programme to get maximum interaction with faculty members, research scholars and students of different departments of CUSAT and also that in a different university- KUFOS.

**IRAA Director** discussed about the chance of having collaboration with Delft university of Technology(TUD) and CUSAT. Dr. Bert said that TUD is now having 54<sup>th</sup> position in world ranking and , he explained about the policy of TUD for having collaboration with state universities abroad. Collaborative projects are possible between the departments is possible whereas TUD look into collaborations only with national universities.

Erudite lecture series was organised in such a manner that it is useful for majority in the academic research. He delivered lecture on the following topics.

Talk -1: ‘Using a systems approach to analyse and structure complex problems’

Talk -2: ‘Public participation in River Basin Management in The Netherlands. (Not) Everybody's concern’

Talk -3: ‘EIA and public participation’

Talk -4: General, the structuring of the management programme in Delft University, Innovations in management teaching etc

Talk -5: Social and environmental impact analysis with respect to Infrastructural projects, tools, approaches, examples

Talk -6: ‘Research Methodology’-Review of Related Literature, Plagiarism, Citing Scholarly Works, Enhancing Research Ideas, Writing Thesis

Talk -7: Talk on ‘Climate policy & Coping with Uncertainty’

Talk -8: ‘Public participation in EIA for project appraisal’

### Discussion with Research Scholars

The initial comment of the professor after hearing the objectives of the research was that the study was very interesting yet a difficult one. Professor commented that the ‘social capital’ & **‘Community resilience’ was an important factor to be considered in rehabilitating fishermen.** He commented that “Many talk about fishermen but none talk to them”. He **advised to follow the ‘Case study approach’ for research and analyze if the subject was aligned with issues of fishermen community.** He **urged to talk to fishermen group and find out the real**

**issues and understand the requirements that are needed to make a rehabilitation project work.** The researcher enquired if she needed to study about all kind of resilience and capitals. The answer was yes, as all assets of the community need to be studied along with environment and climate change. He asked **to refer the project jointly done by CUSAT and Delft University 15 yrs ago at Kollam and take inputs from it and also from the work of Carnegie Foundation.**

The discussion held with Dr. Bert Enserinnk, as a part of the Erudite 2019 was insightful, **helped me to get an insight to sustainable management of ground water.** I discussed the objectives of my research with him; he appreciated on the topic and asked me to think about the correct methodology for optimising the parameters to get a good result. He suggested **the opportunities in the area of social sustainability in ground water management.** Expect that the discussion will help me to frame my work concentrating on sustainability criteria.

The discussion held with Dr. Bert Enserinnk, as part of the Erudite 2019 was an insightful one and helped me understand the vast nature of the topic chosen – both in terms of scope and in terms of work to be carried out. I explained to him the area I would like to work on, i.e Urban Stormwater Drainage systems, and he immediately told me that it was a vast topic and **the first thing I would have to do was to delineate the problem. Stormwater drainage, in India would also mean tackling a lot of other issues, including solid waste management, problems with legislation, problems with implementation and also raising awareness among the stakeholders.** The topic should **also include a technical solution acceptable to the stakeholders - people and industries alike.** He also examined that I should be able **to quantify the benefits, for the cost-benefit analysis, especially when it deals with the quality improvement parameters of life.**

The discussion was mainly focussed on **how to evaluate sustainable aspects quantitatively with respect to binder material for masonry mortar and plaster.** In the present study conventional, traditional and innovative binders have been compared based on strength and durability. In order to develop a sustainable binder, sustainability evaluation need to be carried out. The sustainability criteria considered are (i) socio-cultural (ii) technological (iii) environmental and (iv) economic aspects. Among these four criteria, except socio-cultural aspect all other sustainability aspects could be assessed quantitatively. **In the case of socio-cultural sustainability, feedback survey need to be conducted by preparing questionnaires which should be given to various stake holders. The developed binder satisfying all the four aspects of sustainability may be applied to mass housing with the help of stake holders.** Different sustainability assessment tools are prevalent. **Life-cycle analysis (LCA) of building materials is one such tool. University of Leiden is considered to be the birth place of LCA tool.** It provides a step-by-step process definition of a construction and the relationship between process steps that have effects on human body and environment. **Using LCA before the starting phase of construction, provides opportunities to reduce or mitigate waste and make it recyclable. With the aid of these tool sustainability analysis can be conducted on the basis of (a) ecology (b) comfort and (c) economic criteria.** Recently few researchers have developed models for sustainable evaluation of building envelopes.

As a part of Erudite 2019 program, a session was conducted for interaction with Dr. Bert Enserink. During the interaction, the topic on which research is conducting was briefed and asked for his opinion regarding the aspects briefed. He encouraged the work and highlighted the relevance of work in current scenario as a good solution for shortcomings of the existing system. **Mark on sustainability aspects of self-healing bacterial concrete was discussed and he indicated the agreeable acceptance and importance of the work.** Discussion was forwarded to the sustainability evaluation tool for evaluating the extend of the work as a sustainable solution to durability problems of concrete. **He suggested to carry out life cycle assessment, a comparative study of traditional system versus the system on which the research is carried out, evaluation of cost incurred in both systems and to find out a material sustainability index.** He motivated to carry out a quality work and the discussion was concluded. I was able to have a fruitful session and I thank Govt. of Kerala, CUSAT, SOE and the organizers for giving this opportunity.

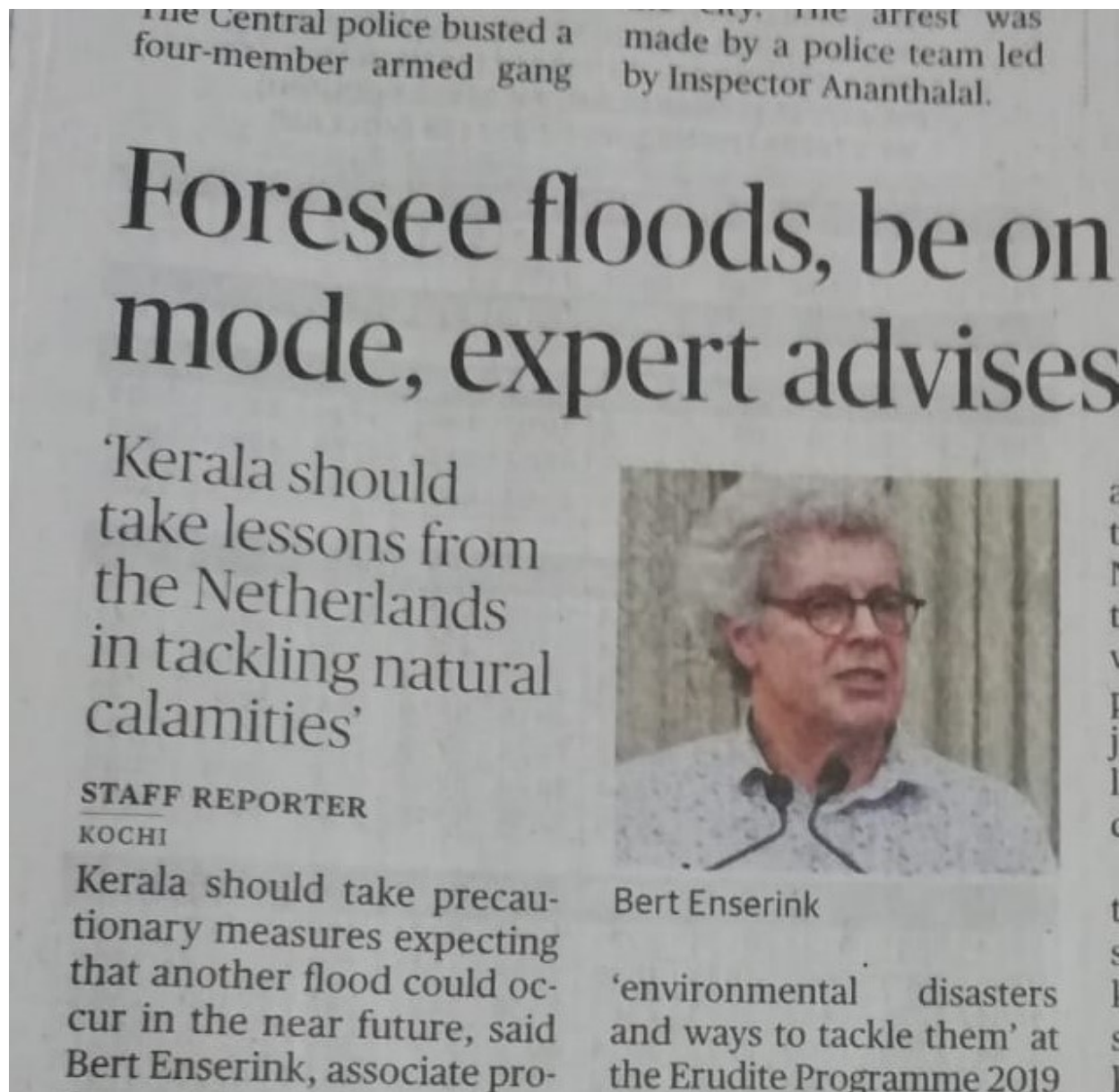
The main objective of the study is for the benefit of low income group in our society. **The difficulties experienced by the low income group , whether they will get a remedy for lowering the construction cost of building by using the locally available stabilized with Natural fibre Reinforced mud/clay/soil and as a sustainable building material** was discussed.

I have made a short discussion with Prof. Bert Enserink about my M.Tech. project “Design and Planning surface drainage system in a town, Kothamangalam”. He gave me some valuable advice in this topic. He enquired about flooding in the town and advised **to provide surface basins, if possible, to collect storm water before discharging into natural streams.** He also opined about rain water harvesting. He also **suggested that storm water can be used in agriculture sector with care about probable contaminations in storm water.**

Dr. Bert , interacted extensively on the subject" sustainable development of water supply @ Kochi ".regarding the subject , the professor made certain valuable thought triggering observations. **Water supply cannot be treated a profit-making business , water is essential for life.** It is one of the crude basic parameters of health of society. Health of nation is a function of the health of society. Clean water creates healthy people. Hence water supply cannot be treated a profit making buiness, nor be a loss-making venture. A no-profit , no-loss business is the viable answer. \*higher pricing may save water; but @ the cost of health of people. **In order to reduce the consumption of water , it may seem logical to raise cost of water. Higher cost may tend people to shift their priorities to contaminated, less cost water. It will adversely affect the health of people .** Hence levying higher price, will have higher social cost. \*recycling of water . Availability of water is limited. Demand is increasing day- by-day. **With the advancement of civilization , the consumption of water is rising. Reusing, recycling, and reducing are the only options available at present in The Netherlands, steps are leading in this direction.** Recharging of sources- excessive exploitation of sources cause faster depletion of water. **The sources have to be conserved and revitalised for futher and prolonged utilization existing sources. Conserving the rain water and using it for recharging of sources have to be extensively explored.**

News in Media

ഗവേഷണ  
രീതിയെക്കുറ  
കുസാറ്റിൽ ക്ല  
കളമശ്ശേരി ▶ കൊച്ചി  
കേരള സർവകലാ  
സിവിൽ എൻജിനീയ  
ഗവു. ഉന്നത വിദ്യാഭ്യാ  
സിലും ചേർന്ന് സം  
ന്ന എറുഡൈറ്റ് പ്രോ  
ഭാഗമായി ഗവേഷണ  
മികരംക്ക് ഗവേഷണ  
ഔദ്യോഗിക ക്ലാസ് നടത്ത  
തർലൻഡ്സ് ഡൽഹി  
വേഴ്സിറ്റിയിലെ പ്രൊ  
ബെർട്ട് ഹൻസെർനിക്



### Acknowledgement

Principal, School of Engineering & Division of Civil Engineering, School of Engineering, Cochin University of Science and Technology expresses sincere gratitude to Kerala State Higher Education Council for providing fund for the conduct of Erudite Scholar- in -Residence Programme.