



# The Institution of Engineers (India)



In Service to the Nation since 1920

## International Conference on

## Water, Energy and Biodiversity for Sustainable Development of BIMSTEC Countries (IC- WEB - BIMSTEC -2019)

December 12-14, 2019

An Event of  
Centenary Celebration of IEI  
in North East India

Organized by:

The Institution of Engineers (India)  
Tripura State Centre  
and

Assam, Manipur, Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, Sikkim, West Bengal State Centres of IEI

*under the aegis of Electrical Engineering Division, IEI*

### In Association with

NIT Agartala, NIT Mizoram, NIT Arunachal Pradesh, NIT Silchar, NIT Nagaland, NIT Manipur, NIT Goa

### In Collaboration with

Federation Of Engineering Institutions Of South And Central Asia (FEISCA)  
The Institution Of Engineers (Bangladesh), Dhaka Centre  
International Institute For Carbon-Neutral Energy Research, Kyushu University, Japan

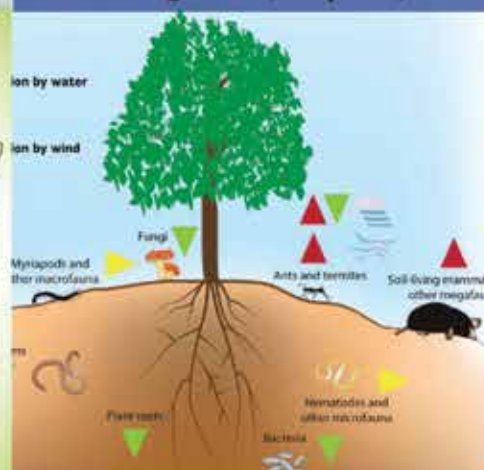
### Event Partner

IEI Overseas Chapter - Nepal, Qatar, Kuwait & TIT Agartala & Techno India

### Knowledge Partner

Tripura University ; ICAFI University, Tripura; PWD (Water Resources), Govt. of Tripura; Tripura State Electricity Corporation Ltd.; Water Management Forum (IEI) ; Solar Energy Society of India; Tripura Bio- diversity Board; Engineering Staff College of India

Venue :  
Agartala, Tripura, India



## About The Institution of Engineers (India)

The Institution of Engineers (India) [IEI] is a statutory body to promote and advance the engineering science and technology, established in 1920 and incorporated by Royal Charter in 1935. It is the largest multi-disciplinary professional body of engineers encompassing 15 (fifteen) engineering disciplines with a membership of more than 0.8 Million, and serving the nation for more than 9 decades. The IEI has its headquarters located in Kolkata and it function through more than hundred Centers and several Overseas Chapters, Foras and Organ. Besides, IEI has bilateral agreements with about 31 international bodies and membership of another eight international bodies of the developed nations across the globe. Being recognized as a Scientific and Industrial Research Organisation (SIRO) by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, IEI promotes the cause of research and development by providing Grant-in-Aid support to undergraduate, post graduate students and PhD Research Scholars of Engineering Institutions and Universities.

IEI conducts Section A & B Examinations in various engineering disciplines (popularly known as AMIE examination), the successful completion of which has been recognized as equivalent to Degree in appropriate field of Engineering of recognized Universities of India by the Ministry of Human Resources Development, Government of India. Every year as many as 90000 candidates appear for these exams.

IEI in collaboration with Springer regularly publishes peer-reviewed International Journal in five series, namely, Series A, Series B, Series C, Series D and Series E covering 15 engineering disciplines, which are Scopus Indexed.

For further details, please visit: [www.ieindia.org](http://www.ieindia.org)

## About Tripura State Centre

The Tripura State Centre of The Institution of Engineers (India) was established getting elevated from the Agartala Local Centre in December, 2008. The Agartala Local Centre was established in 1989 in adhoc shape and got the recognition by the IEI Headquarter on 1st April, 1991. Accordingly, the Silver Jubilee Celebration was organized (inclusive of the period of Agartala Local Centre) during 2015-16. The Agartala Local Centre initially was under the control of IEI, Assam State Centre prior to getting the recognition as Tripura State Centre in 2008. The present strength of Corporate and Non-corporate Members stands at 921 and 769 respectively. The Centre has organized National and International programmes & also 2 Council Meetings and 5 National Conventions which were appreciated by all. The Centre is organizing technical programmes aimed towards the development of the State which has been appreciated by the Govt. of Tripura. The Engineers, Faculty Members and Engineering Students are largely involved in all the activities. Special efforts have been taken to organize Seminar on every Saturday for the Engineering Students and Faculty members of different Technical Institutions and

Expert Engineers of different organizations. The Centre has taken initiative to organize Joint Venture programme with other Centres of IEI and also with the professional bodies in Bangladesh and Nepal for exchange of technology know how of the region. On the basis of performance of Tripura State Centre, it has been accredited as Best Centre Award (for technical activities) in Category-C in 32nd Indian Engineering Congress held at Chennai in the year 2017.

For details kindly visit: [www.ieitripura.org](http://www.ieitripura.org)

## About Assam State Centre

The birth of the Assam State Centre of the Institution of Engineers (India) took place during the 409th Meeting of the Council held at Shillong on 28 November 1958. With a modest beginning with less than a hundred Corporate members in 1959, this Centre today has 6999 members and is the hub of technical activities in the entire region. The Assam Centre has its own Library, Information Centre, well-equipped Auditorium, Lecture Theatre, Conference Hall besides Guest Rooms for members of the Institution. The State Centre has also its Local Centres at Silchar and Namrup (Upper Assam). This Centre has played the crucial role of bringing together the professionals from industry and academia into a common platform for guiding and assisting the local Governments, civic bodies and policy makers.

## About Meghalaya State Centre

Shillong was the Centre of erstwhile Assam State which reduced to paper sub-centre after Assam shifted the Centre to newly constructed building at Guwahati mid 1966. So Shillong Sub-centre under Assam State centre came into existence in august 1966 in a office room allotted by State PWD. In 1975 Government of Meghalaya allotted a plot of land to this Institution and two storied (four room) building was constructed by this sub-centre and shifted its office in 1985.

In 1988 Shillong sub-centre became the Shillong Local centre under Assam State centre. In 2008, Shillong Local Centre was elevated as Meghalaya State Centre. The present strength of Corporate and Non-corporate Members stands at 355 and 506 respectively. This centre is working with closely with State Governments for professional developments of the Engineers.

## About Manipur State Centre

The Manipur State Centre of IEI has been set up in the capital city of Manipur i.e Imphal on 24.04.2010 as per the decision of the Council of IEI for carrying out its technical activities in the state of Manipur and to have close linkage with stake holders.

## About Mizoram State Centre

The Institution of Engineers (India), Mizoram State Centre came in existence 15.05.2018. It has got geographical area of operation in all Districts of Mizoram State i.e. Aizawl, Lunglei, Kolasib, Lawgttai, Mamit, Saiha, Serchhip and Champhai. At present, the State Centre is located in the campus of National Institute of Technology Mizoram, Chaltlang, Aizawl.

## About Nagaland State Centre

The Institution of Engineers (India) Nagaland State Centre was established on February 13, 2019 in the capital city of Nagaland-Kohima. It is housed at Government Polytechnic Kohima. This centre is infant stage and is trying to spread the activities of the IEI throughout the state of Nagaland and would like to collaborate with other technical institutions and government organizations for professional development of engineers.

## About Arunachal Pradesh State Centre

The Institution of Engineers (India) Arunachal Pradesh State Centre was established on 4th Dec 2018 in the premises of North Eastern Regional Institute of Science and Technology (NERIST), Nirjuli, Dist Papum Pare, Itanagar, Arunachal Pradesh 791109. There are about one hundred corporate members who are working as practising engineers, academicians and researchers in the state, presently attached with this centre. This centre is trying its best to collaborate with other technical institutions and government organizations.

## About Sikkim State Centre

The Sikkim State Centre of IEI has been set up in Gangtok, the capital city of Sikkim in the premises of College of Agricultural Engineering and Post Harvest Technology on 24.04.2010 as per the decision of the Council of IEI for carrying out its technical activities in the state of Sikkim and to have close linkage with other technical institutions and government organizations for professional development.

## About West Bengal State Centre

At present, the erstwhile Bengal Centre is known as West Bengal State Centre situated alongside the IEI Headquarters located at 8, Gokhale Road, Kolkata 700 020. There are four Local Centres under the jurisdiction of West Bengal State Centre, located at Asansol, Durgapur, Kharagpur and North Bengal. This centre is carrying out all sorts of International, National, All India and One day seminars for the benefits of the society.

## International Institute for Carbon-Neutral Energy Research (I2CNER):

Ministry of Education, Culture, Sports, Science and Technology (MEXT), Govt. of Japan has taken the initiatives to set up the "World Premier International Research Center under WPI Program in 2007 as a system for providing large-scale support for projects aimed at creating preeminent research centers staffed by a core of the world's most prominent researchers. In FY2010, the "International Institute for Carbon-Neutral Energy Research (I2CNER)" of Kyushu University was selected as the only awarded WPI Institute to serve in the vital area of energy research and sustainability through scientific contributions toward the realization of a low-carbon society.

I2CNER has embarked upon its second term as a permanent unit of Kyushu University. It is aimed to enhance research

capabilities by initiating new collaborations in fields such as theory, mathematics, humanities, and social sciences, and by reinforcing and identifying all potential international research capabilities and opportunities. I2CNER is making all efforts to become the world's-leading carbon neutral research institute. The details regarding this institution is available at <https://i2cner.kyushu-u.ac.jp>

## The Institution of Engineers, Bangladesh (IEB)

is the most prestigious National Professional Organization in Bangladesh. It is registered under the Societies Registration Act of the country. IEB includes all disciplines of engineering. Currently, it has in its roll more than 41,545 engineers with about 30% in the category of Fellows, 60% Members and the rest as Associate Members. In addition, there are a good number of Student Members. Since its establishments, IEB has been promoting and disseminating knowledge and practice of engineering and science. Of the major goal of IEB is to ensure the professional excellence and continuous professional development of the engineers in the country. It has also been working relentlessly to establish close co-operation with the other professional bodies both in Bangladesh and outside the country. It serves through its Centres, Sub-centres and Overseas Chapters. Dhaka Centre is one of the important centre.

The Institution's mission has always been to serve the teeming millions through the practice of engineering science and continuously improving the professional standards of its members. The IEB as a national forum of engineers also addresses the common problems confronting the engineers. On different occasions, IEB came forward with its clear vision of the problems of development and formulated specific suggestions on these issues. IEB prepared and presented its recommendations on the Power Sector Reform Policy, Flood Control and Management, Public Administration Reform, Traffic Problem, National Pay Scale, Information Technology, Renewable Energy, Problems of Dhaka Metropolis and Integrated Approach Towards Solution of Endemic Problem faced by the public etc. to the Government on different occasions. Besides, IEB is also playing a significant role for the professional development of its valued members. The details are available at <http://www.iebbd.org>

## The Federation of Engineering Institutions of South and Central Asia (FEISCA)

is an International Organization established in New Delhi, India in April, 1979 with the UNESCO initiatives in forming Regional Federations. The 1st General Assembly of the Federation was held at Dhaka on 21-22 March, 1981 under the auspices of The Institution of Engineers, Bangladesh. with the objectives to foster co-operation and exchange of information among its national members on selected aspects of interests such as engineering enterprise, engineering facilities and engineering systems. Presently, the FEISCA is headed by Eng. Jayavilal Meegoda, Past President of The Institution of Engineers, Srilanka. The details about FEISCA is available at <http://feisca.net>

## **NIT Agartala, NIT Mizoram, NIT Arunachal Pradesh, NIT Silchar, NIT Nagaland, NIT Manipur, NIT Goa**

National Institute of Technology Agartala ([www.nita.ac.in](http://www.nita.ac.in)), National Institute of Technology Mizoram ([www.nitmz.ac.in](http://www.nitmz.ac.in)), National Institute of Technology Arunachal Pradesh ([www.nitap.ac.in](http://www.nitap.ac.in)), National Institute of Technology Silchar ([www.nits.ac.in](http://www.nits.ac.in)), National Institute of Technology Nagaland ([www.nitnagaland.ac.in](http://www.nitnagaland.ac.in)), National Institute of Technology Manipur ([www.nitmanipur.ac.in](http://www.nitmanipur.ac.in)) and National Institute of Technology Goa ([www.nitgoa.ac.in](http://www.nitgoa.ac.in)) are the institute of National Importance established under the NIT Act 2007 (Amended 2012) of the Parliament of India with full funding support from the Ministry of Human Resource Development, Government of India. These NITs are among the total thirty one NITs in India situated in each State of India. Bachelor, Master and PhD programmes are being run in each institute and students are being admitted from India and Abroad through DASA scheme.

**International Conference Theme : Water, Energy and Biodiversity for Sustainable Development of BIMSTEC Countries (IC-WEB- BIMSTEC-2019)**

### **Introduction**

“Water, Energy and Bio-diversity” are the primary natural resources required by the mankind for sustenance of lives and life supporting systems. Water is life; energy and biodiversity are the life supporting resources. Over the passage of time, significances of these resources, have gained a lot of importance because of number of emerging issues, such as; population rise and their associated requirements, growing urbanization and industries, increasing infrastructural development activities, increasing deforestations, rising living standards, improving socio-economic conditions, socio-cultural changes, more awareness about the lives, environments and conservation of natural resources, etc. These are the common features almost in all developing countries and in every state of India.

The Northeast region of India and most of the BIMSTEC countries have tremendous potential of “Water, Energy and Biodiversity”. However, mounting pressure on those resources owing to rising demands in the region, inappropriate supply-demand management practices, location & topographic difficulties, insufficient infrastructural facilities, increasing deforestation activities, strategically important & sensitive region, inadequate people-public-private entrepreneurships, over and above, inadequate knowledge base about the natural resources of the region and its management practices; in many cases, resources in this region remaining untapped or scarcely used or being haphazardly managed. In some cases, due to undermining and unplanned management of these resources; human sufferings, socio-economic conditions including natural degradation are posing number of serious threats and challenges, although the region is considered to be rich on water, energy and bio-diversity, which can neither be overlooked nor undermined. Impact of climate change on these natural resources is another major issue

started experienced by the whole Globe that needs be combated for coping up with the risks and threats and for taking up appropriate adaptive measures. If we failed to take appropriate scientific measures to restore-serve-management of these natural resources to meet our future requirements and challenges, before the time is passed, we will have to pay the price in future.

The BIMSTEC countries namely, Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal and Bhutan being stakeholder of Multi-Sectoral Technical and Economic Cooperation in the province of the Bay of Bengal, this group has collective roles to initiate dialogues for conservation and sustainable management of these natural resources for better tomorrow. It is in those contexts, this International Conference on “**Water, Energy and Biodiversity (WEB) for Sustainable Development of BIMSTEC Countries (WEB for BIMSTEC-2019)**” has been planned to **organize during December 12-14, 2019 at Agartala, Tripura, India.**

### **Sub-Themes**

#### **Water Resources**

- Surface Water Resources Potential & Issues
- Ground Water Resources Potential & Issues
- Environmental Hazards & Water Quality Issues
- Integrated Water Resources Management & Livelihood
- Innovative & Advanced Techniques, Technologies & Prospects
- Impact of Climate Change on Water Resources
- Participatory Water Resources Management
- Other Related topics

#### **Energy Resources**

- Hydroelectric Energy & Issues
- Natural Gas Based Energy Resources & Issues
- Bio-Energy & Bio-Fuel Resources & Issues
- Renewable Energy & Issues
- Energy Transmission Related Issues
- Innovative & Advanced Techniques, Technologies & Prospects
- Participatory Energy Management
- Impact of Climate Change on Energy
- Public-Private Entrepreneurship in Energy Management
- Other Related Topics

#### **Biodiversity**

- Biodiversity Species & Issues
- Soil-Water-Biodiversity Issues
- Water-Energy-Biodiversity Issues
- Human Interventions to Biodiversity & Impact
- Innovative & Advanced Techniques, Technologies in Bio-diversity.

- Impact of Climate Change on Biodiversity
- Participatory Approach in Biodiversity Management
- Other Related Topics

## **Nexus among Water, Energy and Biodiversity for Sustainable Development and Cooperation needed in BIMSTEC Countries**

### **Objective**

The main objectives of this Conference are:

- To bring together water resources planner-managers-engineers-scientists; energy planners-managers-engineers- scientists, biodiversity planners-managers-scientists; academics, area related engineers, economists, environmentalists, social scientists, public and private sectors dealing with Water, Energy and Biodiversity and related industries, NGOs, etc. in the region to discuss, report results, problems and exchange ideas, etc.,
- To provide a discussion forum of the policy makers-managers, public-private bodies, researchers, visionaries, and users and beneficiaries of these natural resource, and,
- To evolve suitable scientific roadmaps on how these natural resources can be conserved and managed in a sustainable manner to tackle the future emerging challenges.

### **Call for Papers**

We are pleased to share that all North East State Centre of The Institution of Engineers (India) is organising International Conference on the theme ‘Water, Energy and Biodiversity for Sustainable Development of BIMSTEC Countries (IC-WEB-BIMSTEC-2019)’ during December 12-14, 2019 at Agartala as **an Event of Centenary Celebration of IEI in NORTH EAST INDIA.**

### **Submission of Extended Abstract**

Two pages extended abstract with concise objective, key results and a brief conclusion should be submitted through e-mail to **web2019agartala@gmail.com** with a copy to **tripurasc@ieindia.org**

Author(s) should indicate the intended topics from the provided sub-theme list.

### **Important Note**

- Extended abstracts are to be submitted in MS Word (.doc)
- Presentations of the technical papers will be in English either orally or by poster.
- Selected papers will be published in agreed-upon SCOPUS INDEXED international journals after reviewing.

### **Guidelines for Authors**

Authors intending to submit a paper for International Conference are advised to adhere to the **attached two page template**. The papers not conforming to these guidelines may not be considered for review / publication

### **Copyright**

The papers are considered for possible publication on the understanding that these have not been submitted to any other publisher. The copyright of papers accepted for publication lies with The Institution of Engineers (India) and reproduction of the papers or any part thereof is not allowed without the permission of the Institution. Contributors are required to sign a declaration to this effect while submitting their papers.

As per Bye-Law 118 of IEI, Copyright of each paper published in Institution Journals or Proceedings in full or in Abstract at its Centres shall lie with the Institution.

The Declaration Form of IEI can be downloaded from the link:

[https://www.ieindia.org/webui/IEI-Activities.aspx#Call\\_Papers](https://www.ieindia.org/webui/IEI-Activities.aspx#Call_Papers)

### **Nodal Dates**

Last date of submission of extended abstracts	November 08, 2019
Notice of review outcome	November 15, 2019
Submission of revised extended abstract	November 20, 2019
Intimation of acceptance of extended abstracts	November 22, 2019
Last date for Registration	December 04, 2019

### **Registration**

Corresponding / Presenting Author(s) have to register themselves for the **International Conference on Water, Energy and Bio-diversity for sustainable Development of BIMSTEC Countries under the aegis of Electrical Engineering Divisions of IEI**, without which the paper will not be considered for presentation.

### **Registration Fees**

Paper presenter (Oral/Poster)(from India) : ₹ 5000;

Paper presenter(Oral/Poster) (from Abroad) : \$ 100

Member of IEI : ₹ 2500; Individual : ₹ 3500;

Students / Research Scholar : ₹ 1000

Foreign Delegate : \$ 60; Spouse : ₹ 1500

**Registration Fee includes Participation in all Sessions of the Conference, the Exhibition, Conference Dinner, Opening & Closing Ceremonies, Cultural Programmes, Buffet Lunch along with Tea / Coffee, Delegate Kit.**

### **Award**

Three Best Papers in each sector will be awarded separately in poster and oral presentations.

### **Payments**

Demand Draft / Cheque on any Bank in favour of “The Institution of Engineers (India), Tripura State Centre” payable at Agartala, India

### For online payment, please follow the details:-

Bank Name : **State Bank of India**

Address of the Bank: T.L.A. Branch (Branch Code -**0559**), Colonel Chowmuhani, Agartala, West Tripura, Pin – 799001

Country of the Bank: India

Beneficiary's Name: The Institution of Engineers (India), Tripura State Centre

Bank Account No. : **10320317668**

Address of beneficiary : Pandit Nehru Complex, P.O.: Kunjaban, Agartala, West Tripura, Pin - 799006

IFSC Code : **SBIN0005559**

PAN NO. : AAATT3439-Q

GST NO. : 16AAATT3439Q1ZX

### Publications

A Technical Proceeding (Electronic and Print form) with ISBN No. having all Accepted and Registered Papers will be published on this occasion of International Conference for distribution to the Registered Delegates as well as to various related organizations across the country and abroad. At least one Author of accepted paper has to register for its publication in Proceedings.

All Selected and Registered papers will be presented in full and the Conference/Session Chair(s) will select the papers which is fit for journal publication. Accordingly, Authors will be advised to submit the full-length paper in the format of Journals and after peer review, it will be published in the regular publication of **IEI Springer Journal Series A or B or C** based on the subject of the article or one regular issue of Journals on the theme of the conference may be brought out as per the decision of the authority. Discussions is also going on for publication of papers in the following Scopus Indexed International Journals as per above norms following the title and theme of the papers: **Evergreen, Tropical Ecology, Proceedings of Zoological Society and Journal of Threatened Taxa.**

Along with the Technical Proceedings, a Souvenir will also be brought out to commemorate the event where messages from dignitaries, popular write-ups from BIMSTEC Countries will be published. It has been decided to accept a few selected advertisements in the Souvenir on first come first serve basis.

Back Cover (outside) Multi Colour ₹ 60000/-

Front Cover (inside) Multi Colour ₹ 50000/-

Back Cover (inside) Multi Colour ₹ 45000/-

Full Page (inside) Multi Colour ₹ 15000/-

Inside Full Page (Black & White) ₹ 10000/-

Inside Half Page (Multi Colour) ₹ 8000/-

Inside Half Page (Black & White) ₹ 5000/-

Size of Souvenir .....A4/One-Fourth Demai

Organizations wishing to publish their advertisement may please forward the same before **25th November, 2019.**

### Sponsorship

Organizations/Institutions/Industries interested to sponsor various activities of this International Conference are welcome. They may send the details of Sponsorship paying the requisite amount (as per the following rate) for making the programme a Grand Success.

**Platinum Sponsorer : ₹ 5.0 lacs**

(Includes free registration of **ten** delegates and one full page Colour advertisement in Souvenir).

**Dimond Sponsorer : ₹ 3.0 lacs**

(Includes free registration of **six** delegates and one full page Colour advertisement in Souvenir).

**Gold Sponsorer : ₹ 2.0 lac**

(includes free registration of **four** delegates and one full page Colour advertisement in Souvenir).

**Silver Sponsorer : ₹ 1.0 lac**

(includes free registration of **two** delegates and one full page Colour advertisement in Souvenir).

**Supporter : ₹ 0.50 lac**

### Accommodation

All Delegates have to arrange their own accommodation within the close proximity of the Conference venue. The list of available Hotels at all categories is mentioned at the back side of this Brochure.

### Conference Website

The Conference website is located at: [www.ieindia.org](http://www.ieindia.org)

### About the Venue

Agartala is the capital of Tripura, a State in North Eastern region of India. The city is well connected by Air with Kolkata, Guwahati, New Delhi, Imphal, Chennai, Hyderabad & Bengaluru. This city is connected by Rail with Kolkata, Silchar, Guwahati, New Delhi & Bengaluru and also by Road. Tripura is a historical place and finds places in many literary works of great poet Rabindranath Tagore. Agartala city is full of temples of all communities which symbolises the secular character of our Country. Tripureswari Temple, a pithasthan, about 50 km from Agartala is a special attraction to tourists and on the way, there is a sanctuary at Sipahijala. Many tourists flock to see the country side of Bangladesh since the border is only 2 km from Agartala City. Neermahal, a Lake Palace at Melaghar is about 45 km from Agartala city.

### Contact

Er. Tapan Lodh, Organising Secretary, IC-WEB-BIMSTEC-2019 & Chairman, Tripura State Centre  
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email : [web2019agartala@gmail.com](mailto:web2019agartala@gmail.com), [tripurasc@ieindia.org](mailto:tripurasc@ieindia.org), [ieitripura@gmail.com](mailto:ieitripura@gmail.com) , [www.ieitripurasc.org](http://www.ieitripurasc.org)

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## Extended Abstract Guidelines for the International Conference on Water Energy and Bio-diversity for Sustainable Development of BIMSTEC Countries, WEB2019, Agartala, India

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Figure 1. Caption of figure showing the conference title.

Equations should be written using MathType or Microsoft Equation 3.0. Using the Insert Equation for “Type equation here” is not preferable. Instead use “Insert→Object→Microsoft Equation 3.0” to type your equations. Leave a line before and after the equation. Equations should be numbered using Arabic Number. Equations and the numbering should be centre-aligned as:

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Table 1. The important deadlines for WEB2019, Agartala, India.

Type	Date
Submission of extended abstract:	October 28, 2018
Notice of review outcome	November 08, 2019
Submission of revised extended abstract	November 15, 2019
Notice of acceptance	November 20, 2019

## Conclusions

Conclusions must be succinct, concise and supported by the key findings. Avoid using point-by-point form, instead, use sentence form. Summary of what is done should be omitted.

## Acknowledgments (Optional)

The authors express Funding Agency AAA for their financial support to conduct this research.

## References

- [1] F. White, Fluid Mechanics, 4<sup>th</sup> edn. McGraw Hill, New York, 2011.
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