

डॉ. रमन सिंह  
मुख्यमंत्री

**Dr. RAMAN SINGH**  
CHIEF MINISTER



महानदी भवन, मंत्रालय  
नया रायपुर, छत्तीसगढ़ - 492002

Mahanadi Bhawan, Mantralaya  
Naya Raipur, Chhattisgarh

DO.No. ... / VIP / 2017.....

DATE : 11/01/2017.....

### MESSAGE

It is a matter of great pleasure that the Government Digvijay Autonomous P.G. College, Rajnandgaon, Chhattisgarh, is organizing two-day National Seminar on "Advances in Environmental Science and Technology" on 23rd and 24th of January, 2017.

On this auspicious occasion, I wish to convey my warm wishes for the grand success of the above seminar and hope that large number of scientists and scholars will attend it to make use of the deliberations from learned scientists. I also hope that it will become a stage for the upcoming scientists to share their work and also a great opportunity for the budding academicians of all round the country to learn from the eminent scientists participating in the seminar.

I convey my best wishes for the success of this seminar and hope that the seminar will bring out new findings for the benefit of all.

I wish the seminar a grand success.

Dr. Raman Singh  
Chief Minister



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क्रमांक 612 मंत्री/रा.आ.प्र., पु., उ.शि., कौ.वि., त.शि., रो./2016

रायपुर, दिनांक 11/01/2017



### MESSAGE

It is matter of great pleasure that the Department of Botany, Government Digvijay College, Rajnandgaon C.G. is going to organize two days National Seminar on " Advances in Environmental Science and Technology " on 23<sup>rd</sup> & 24<sup>th</sup> of January 2017.

I feel it is the appropriate time to think, gather and develop strategies to create awareness about environment and new techniques for its protection in Chhattisgarh. I appreciate the objective of the Seminar for creating the awareness in the field of Environment. It will be helpful for planting strategies for protection. Conservation and sustainable use of resources for saving the environment.

I wish the event a great success.

  
(PREM PRAKASH PANDEY)

**ABHISHEK SINGH**  
Member of Parliament (Lok Sabha)  
Rajnandgaon, Chhattisgarh



Member :  
• Public Accounts Committee  
• Standing Committee Information Technology

**OFFICE**

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**A** N<sup>o</sup> 006017/15  
S. No.:

Date: 3/1/17



**MESSAGE**

*I am very happy to know that Department of Botany, Government Digvijay Autonomous P.G. College, Rajnandgaon Chhattisgarh is organizing a National Seminar on "Advances in Environmental Science and Technology" on 23<sup>rd</sup> and 24<sup>th</sup> of January, 2017.*

*Chhattisgarh State has great potential for development in the field of environmental Science and Technology. New researches and information will enable our academicians and growing scientists of the region to formulate new innovative ideas of development. In such pursuits the organization of national Seminar will be of great help in finding the path & development.*

*I feel that deliberations and discussions in the Seminar on the above topic will definitely reach to a meaningful conclusion and also be very helpful in planning strategies for the research and development in Chhattisgarh.*

*I wish the Seminar a great success.*

*Asingh*  
(ABHISHEK SINGH)



# खुबचन्द पारख

उपाध्यक्ष (केबिनेट मंत्री दर्जा)

राज्य स्तरीय बीस सूत्रीय कार्यक्रम कार्यान्वयन समीक्षा समिति (छ.ग.)



फो.न. 07744 - 325097

07744 - 224397

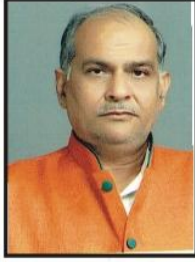
07744 - 406397

मो.न. 094255 - 62797

098261 - 73297

प. क्र. ....

दिनांक .....



यह जानकर हार्दिक प्रसन्नता हुई कि शासकीय दिग्विजय महाविद्यालय, राजनांदगांव में यू.जी.सी. द्वारा प्रायोजित Advances in Environment Science & Technology पर राष्ट्रीय सम्मेलन का आयोजन किया जा रहा है।

राष्ट्रीय स्तर के इस सम्मेलन से उपस्थित होने वाले देश के प्रबुद्ध वैज्ञानिकगणों के ज्ञान तथा अनुभवों का लाभ प्रदेश के विद्यार्थियों को प्राप्त हो सकेगा।

मुझे विश्वास है कि, इस सम्मेलन से प्रदेश के विद्यार्थियों को नवीनतम शोधों, तकनीकों के साथ-साथ विविध विषयों की अत्याधुनिक जानकारीयां प्राप्त हो सकेगी।

मेरी ओर से आपको एवं समस्त आयोजक मण्डल को हार्दिक शुभकामनाएं।

आपका  
खुबचंद पारख

निवास :- गौतम भवन , गंज लाइन , राजनांदगांव (छ.ग.) 491441

**मधुसूदन यादव**

**महापौर**

**नगर पालिक निगम, राजनांदगांव (छ.ग.)  
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क्रमांक :

दिनांक .....



### Message

I am glad to know that the Department of Botany, Government Digvijay Autonomous P.G. College, Rajnandgaon Chhattisgarh is going to organize a National Seminar on " Advances in Environmental Science and Technology " on 23<sup>rd</sup> & 24<sup>th</sup> of January 2017.

To face and overcome the development related challenges, we should be more aware of the environmental issues. It is very important to develop the feeling of devotion towards conservation of environment and the natural resources.

I hope that authentic research papers presented in the National Seminar organized on such a topic will not only benefit the education world but also public in general.

My Best wishes for success of the Seminar and publishing of souvenir.

  
5/11/2017

( Madhusudan Yadav )

# Govt. Digvijay Autonomous P.G. College RAJNANDGAON (C.G.)



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No. ....

Date .....



I am glade that Department of Botany Goverment, Digvijay College Rajnandgaon is Organizing a National Seminar on the topic "Advances in Environmental Science and Technology"

Environment and technology is related to each other, both of these share the Common goals for the betterment of mankind. It is important to update environmental Knowledge with the new technologies and trends of research on the basis of our traditional knowledge. I am Confident that the seminar will provide a good Plateform for mutual exchange of Ideas, Knowledge and experience.

I welcome all the participants of the seminar and hope this will bring out some new findings for the benefit of the people.

I wish all the success for the seminar and congratulate the organizer for their attempts and hard work.

(Dr.R.N.Singh)  
Principal  
Govt.Digvijay College  
Rajnandgaon (C.G.)

## **ACKNOWLEDGEMENT**

The Department of Botany, Govt. Digvijay Autonomous P.G. College, Rajnandgaon, C.G. had organize National seminar on “Advances in environmental science and technology”. The seminar had touched the burning topics of environmental protection and new technologies for its preservice and created awareness for environment with meaningful discussions and paper presentations.

I am thankful to U.G.C., C.R.O., Bhopal for providing the opportunity to host this national seminar.

It is my great pleasure to express my gratitude to our chief guest Honorable Khubchand Parakh Ji, Vice President 20 point programme, Govt. of Chhattisgarh who had taken out time for the inaugural function of national seminar.

I extend my thanks to our chairperson Honorable Madhusudan Yadav Ji, Mayor, Rajnandgaon for his kind support to us throughout the event.

I am very much thankful to the Dr. R.N. Singh, Principal, Govt. Digvijay Autonomous P.G. College for his encouragement and continuous motivation throughout the seminar.

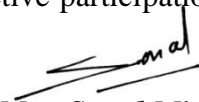
I pay my sincere thanks to Dr. M.P. Gupta, Director, Extension Services, IGKV, Raipur for delivering the keynote address and provided a wider base for opening discussion on the seminar topic. I am highly thankful to the renowned resource persons of the seminar Dr. T. Srinivasu, (RTM University, Nagpur), Dr. Sanjat Sahu (Sambalpur University, Orissa), Dr. Lal Singh (NEERI, Nagpur), Dr. K.L. Tiwari (Registrar, Aayush University, Raipur) and Dr. Sushil Kumar Shahi (Guru Ghansidas Central University, Bilaspur) for sharing their knowledge with us and provided us an opportunity to have interaction on the important topics which will definitely help the young scientists, professors, environmentalists, students, society and law makers to proceed in the path of serving environment.

I am heartily thankful to Dr. K.L. Tiwari (Registrar, Aayush University, Raipur), Dr. S.K. Jadhav (Head, SOS in Biotechnology, Pt. Ravishanker Shukla University, Raipur), Dr. R.N. Ganguly (Dean, Govt. Horticulture College & Research Station, Pendri, Rajnandgaon) for their kind consent for valedictory function and award ceremony.

I am thankful to Dr. S.K. Jadhav, Dr. S.V.K. Prasad, Dr. R. Diwan, Dr. V.K. Kanungo, Dr. Avinash Kumar Sharma, Dr. V. Acharya, and Dr. K.K. Sahu for chairing different sessions.

I am heartily thankful to Dr. Anita Mahishwar (Prof. and HOD, Department of Botany), Dr. Shailendra Singh (Asstt. Prof. History), Mr. D. Suresh Babu (Asstt. Prof. Pol. Science), Dr. V.K. Kanungo (Asstt. Prof. Botany) and Mr. Trilok Kumar (Asstt. Prof. Botany) for their guidance and support during the seminar.

I am profoundly thankful to all the teaching and non-teaching staff and M.Sc. Students for their cooperation. I am specially thankful to all the delegates for their active participation in the seminar and bringing their expertise to our gathering.

  
**Mrs. Sonal Mishra**  
**Dept. of Botany**

## **PREFACE**

It is our great pleasure to present the proceeding of the national seminar on “Advances in Environmental Science and Technology” organized by Department of Botany on 23<sup>rd</sup> and 24<sup>th</sup> of January 2017 in Govt. Digvijay Autonomous P.G. College, Rajnandgaon.

We believe that the seminar had provided a great platform to scientists, researchers and students to share research and ideas and to discuss about the importance of environment and new technologies.

As we know that the term environment includes all the factors which effect life in one way or the other. The environment with its diversity and different parameters are of paramount importance. Chhattisgarh is rich in its floral wealth about 44% of our state is covered by forest, but this is the time where we have to focus our attention on the coming threatening aspects related to environment and try to control the pollution, as well as we have to work for the conservation of our resources and environment.

It is a global challenge to protect the environment and save the degrading atmosphere. The field environmental science had a tremendous scope to work with, several researches are going on all over the world in this field.

We believe that the seminar had proved to be a milestone in bringing together the scientists and the scholars of the region and had helped to develop environment friendly approach.

***Dr. Anita Mahishwar***

**Convener**



## EDITOR'S DESK

We are indeed privileged and delighted to host the national seminar in Department of Botany on “Advances in Environmental Science and Technology” in Govt. Digvijay Autonomous P.G. College, Rajnandgaon on 23<sup>rd</sup> and 24<sup>th</sup> January 2017 sponsored by U.G.C., C.R.O., Bhopal, M.P.

Environment is gifted by Nature to nourish the life on Earth. An Environment is the natural world which surrounds the Earth and makes a particular geographical area in which human beings, animals, plants and other living and nonliving things exist.



Environmental science is an interdisciplinary field where all the subjects are correlated incorporating informations and ideas from multiple disciplines. It is the field that involve study of interactions among the physical, chemical, and biological components of the Environment as well as their relationships and their effects on the organisms.

The environmental science can be combined with new technologies to focus on analyzing and reducing problems with the Environment due to Men and for finding solutions to help, protect, and preserve the Environment by Pollution, Population, and Overuse.

The study of Environmental science helps to enlighten the world about the global issues like ozone depletion, global warming, acid rains, forest destructions etc. It is a big challenge to maintain environmental balance along with developmental activities.

Applying Knowledge is needed to solve these problems so that Environment can be preserved. By the help of new and advanced technologies and researches solutions can be found for sustainable production and uses. The objective of this seminar is to provide the same idea.

We express our sincere thanks to UGC for giving us the opportunity to host this seminar. The seminar program has been planned to deliver the most recent advancement in Environmental science and Technology by eminent scientists and professors across the Country that can provide benefit to the people with the motto “Environment is our basic need we should not waste it for our greed”

The seminar had provided a platform to think, share and discuss the issues and solutions related to the topic “Advances in Environmental Science and Technology”. Let us join hands together to share our knowledge and experience that will go a very long way in helping to build up the healthy environment and healthy nation.

  
**Mrs. Sonal Mishra**