



Communique

Indian Association for Productivity Quality and Reliability

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From the Editors' Desk

Running After Quantity Alone !

The age-old adage 'first deserve, then desire' seems to have been grossly overlooked when the Union Cabinet recently decided to set up 6 more IITs in the states of Andhra Pradesh, Chhattisgarh, Goa, Jammu & Kashmir, Kerala and Karnataka, in addition to the existing 16. 'Deserving', in this context, means having the right kind of infrastructure — both physical and in terms of human resources — necessary for starting an institute of higher

accounted for nearly 10% of country's total engineering enrolment, at present this has dropped down to less than 1% so that these new ones will help restore the earlier share, again, simply overlooks the fact that the old IITs had attained global credentials by virtue of their quality output. Quality of output, as we all agree, very much depends on the quality of input as also that of processing. Quality of input, in terms of quality of intake material—



Participants, alongwith Prof S. P. Mukherjee, Prof. B. Das, Prof S. B. Bagchi, Dr. Manu Saxena (Director, HRDC) and other resource persons at the Training Programme on Research Orientation at CSIR-HRDC, Ghaziabad (See page 7)

studies of such a high brand value as IIT. One may argue that let the *Quantity* come first, *Quality* will then necessarily follow. Unfortunately, the bare truth is that our experience has been lamentably otherwise. Many of the IITs started in 2008 are languishing for want of adequate number of teachers — a significant number of faculty positions have been lying vacant —let alone the talk of quality teachers of standards matching these highly rated institutes. IIT Mandi has not yet been able to have fully shifted to its main campus. What is more, the placement scenario in these IITs is not bright either. Even the original 5 IITs have miserably failed to keep pace with the fast improving international standards, as reflected in none of these being able to figure in the top 100 world universities at present. In the backdrop of all these, the decision seems to be more of a populist nature prompted by the sheer compulsion of projecting a good background music for 'aachhe Bharat' slogan, rather than a prudent move dictated by reasons.

The argument put forward in favour of starting these proposed new IITs that while in the past, the 5 old IITs

the students—also, besides that of physical infrastructure and of human resources influencing quality of processing in a large way, is bound to suffer when it comes to feeding 22 IITs compared to only 5.

Before making the sweeping observation that there is a demand for an estimated 1,00,000 high quality engineers in the country each year, against the present supply of around 10,000 from the existing IITs, punctuating the much pampered need for more such institutes, one needs

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to undertake a carefully designed survey to capture the true picture of this demand, as also the placement records of the output including that of under employment among them, and how many disgruntled IITians are opting out to management, civil service and other careers.

Nobody really grudges quantity — nor do we either — provided side by side quality is also ensured. In the present scenario, the need of the hour is consolidating the positions of the existing IITs by filling in the faculty vacancies, attracting best and talented teachers by offering flexible compensation packages, creating an attractive research atmosphere with the state-of-the-art

facilities and infrastructure, offering handsome scholarships to meritorious and needy students, upgrading the hostels adequately to attract aspirants from far flung regions, and eliminating the nuisance like ragging altogether from the campus.

Let quality be put in place first for the existing facilities. Then only we can think of the luxury of 'desiring' to expand in terms of quantity.



(B. Das)
Chief Editor

Lead Article

Global Warming, the Paris Accord and Pressure on India

Prof. H. S. Ray

Former Director, CSIR–IMMT, Bhubaneswar

The world's nations first met in 1992 in Rio De Janeiro to discuss how to avoid 'dangerous anthropogenic interference with the climate system'. Since then they have met 19 times, but carbon emissions have not decreased. In fact since then nations have added as much carbon to the atmosphere as they did in the previous century and earth's temperature continues to rise. The past decade has been the warmest.

The Paris Accord is supposedly a historic 32-page document that was finalized on Dec. 12, 2015. Finalized by 196 countries in presence of 1560 Heads of States this agreement has been called by Barac Obama a 'turning point' in world history. The main goal is to limit temperature rise to a maximum 2°C, preferably 1.5°C, by 2100. It is now accepted that the average global temperature of 14.0°C has increased by about 0.9°C since the 19th Century, the most increase being since 1960. The increase varies with regions of earth. In the Arctic it is several times more. If nothing is done the increase may reach 3.5°C by 2100, and that would be catastrophic even beyond 2°C.

India was a key to the Paris Accord which could be achieved when India agreed to three things. First, emissions intensity will be reduced by 33-35% per unit of GDP by 2030 as compared to 2005 levels. Second, 40% of installed electric power capacity would be based on nonfossil fuels by 2030. Finally, the country will create an additional carbon sink of 2.5 - 3 billion tons CO₂ equivalent through afforestation by 2030.

Problems remain as regards what the Accord may actually achieve. It needs to be notified by at least 55 countries which account for at least 55% of total global emission. Essentially a compromise deal, the document says what to do, but now how to, and the pledges are voluntary for the next 10 years. Countries are basically relying on *naming*

and shaming the defaulters to influence them. It does safeguard the principle of common but differentiated responsibility. But the Accord did not incorporate the words *compensation* and *liability* suggested by India. It is estimated that the share of emissions by different nations in the period 1850 - 2011 are as follows (in percent) : the U.S. - 27, the EU - 28, China - 11, Russia - 8, Japan - 4, India - 3, Canada - 2. Advanced countries did not accept historical liability. India had suggested that developing countries be given aid by the developed countries to the tune of \$2.5 trillion by 2030. The final agreement has been for \$100 billion per year till 2020.

The National Geographic Magazine has brought out a special issue on the subject (Nov. 2015). Earlier too (e.g. Aug 2007 issue) the magazine published excellent coverage of the subject. Some pieces of information given here are taken from these sources.

Carbon emissions are coming from the following sources (in percent) : electricity and heat generation -24.6, land use change - 18.2, Agriculture - 13.5, Transportation - 13.5 and industry - 10.4. In the U.S., housing, transportation and the industry account for one third each, approximately.

Today the main culprits are the U.S. and China and then well below are the other major polluters : Russia, India, Japan, Germany and the U.K. The per capita electricity consumptions (kwhr) are roughly : the U.S. - 14000, U.K. 7000, Japan 8000, Germany - 6000, Australia - 11500, China 1500, Brazil - 2200, India - 600, Mexico - 2500, and Cuba - 1500. Per capita consumption of energy is rather low for India but it is under pressure now because it has a large population and it is registering an enviable growth rate.

The main sources of world's energy (in percent) are : Coal - 36, Petroleum - 43 and natural gas 20.3. However the

figures vary widely for individual countries.

The main green house gases that cause global warming have the following concentration (in percent) in air : CO₂ - 1.2, CFC - 0.3, methane - 0.16, nitrous oxide - 0.07. Although the effect of methane is 28 times as severe, it is receiving less attention because its percentage is low and the duration of its stay in the atmosphere is short. CO₂ is considered the main culprit and it comes from fossil fuels, which before the age of industrialization were only three benign wastes of natural processes. CO₂ emissions are absorbed by the water of the sea and the greenery of the land mass but now the CO₂ emission greatly exceeds earth's carrying capacity. Matters have been made worse by deforestation. NASA satellites data show that global forest cover has suffered a loss of 888000 sq. miles during 2000-2012, almost 3 times as much as the forest that regrew.

The likely effects of global warmings are well known. Amongst many other alarming effects industrialized regions will also face increasing levels of pollution and toxic gases that would cause serious damage to health, reduced longevity etc. Some cities of China are now so polluted that they are importing in bags or cans of crisp clean air for breathing and relief, from special areas of the U.S. and Canada. This clean air sells for five times the price of mineral water (see the Telegraph, Calcutta, Dec. 2015).

The world is now beginning to fight back.

The U.S. and China have announced a belated deal to cut back emissions. In 2014 global carbon emission from fossil fuels did not increase even though the global economy was growing. Even oil giant Saudi Arabia is promoting solar power. Europe has pledged to cut emissions by 40% by 2030 compared to 1990 levels. Hybrid electric cars are in production and even Airbus is developing a hybrid version to be available by 2050.

Yet contradictions remain. After Fukushima disaster Germany shut down 9 out of the 17 atomic reactors they operated earlier. The rest will be shut down by 2022. However, it continues to produce thermal power from lignite, the dirtiest form of coal, of which they continue to mine some 22 m tons every year. India is committed to produce 40% electricity from renewables by 2030 but it plans to triple coal production to 1.5 billion tons as compared to the present level. The Kyoto Protocol signed on Dec 11, 1997 by 175 countries, with the exception of the U.S. and Australia, had recommended that the developing countries be allowed to increase per capita emission, at least at a gradually slower rate, while the advanced countries would decrease that so that by 2030 all countries would reach a common level. However, most countries in Europe except the U.K. and Germany failed to meet their pledges, and emissions increased.

When the U.S. refused to take concrete steps to battle

global warming the then U.S. Vice President, Al Gore, however, became vociferous in supporting remedial measures. In fact he made a very well received documentary called *An Inconvenient Truth* and he was awarded the Nobel Peace Prize.

During 1990-2014 per capita increase for China and India was, respectively 47% and 55%. These countries had to start developing. In the late 80's and early 90's, when India's growth story was yet to begin, the country was under pressure for its methane emissions. The gas comes from rice plants submerged in water, biomass in water bodies like Chilka lake and from the guts of cattle. Several American scientists (including a few of Indian origin) argued that India must reduce its rice cultivation and cattle population! The then Director General of CSIR, late Dr. A. P. Mitra fought back by countrywide measurements on methane emission from rice fields. I was a part of the team from RRL (now CSIR-IMMT) Bhubaneswar which worked on several fields as well as in Chilka. The team's findings published in *Nature* conclusively proved that American estimates were far off the mark. As regards methane from cattle I remember telling Dr. Mitra that the American estimates must have been based on work with American cattle which are, on an average, may be three times bigger than the Indian counterpart. Moreover, in the 300 million plus cattle population in India there would be calves and old and sickly. Consequently, the production of dung would perhaps be one tenth of the American estimates. With these the methane pressure on India was gone.

India, however, has to do something about the CO₂ emission. The country already meets almost 10 percent of energy needs from wind energy, which is much more than that from atomic reactor. The solar power is poised to expand dramatically. Gujarat has already forged ahead. Germany is now offering to Andhra Pradesh solar power where the energy cost will be almost comparable to conventional energy. There should be more of electric public transport and less diesel powered private vehicles. There should be separate tracks for commuters on bicycles. India has so far exploited about 50% of its potential hydel power. For a variety of reasons this cannot increase. But wind energy and solar energy are bright options. Buildings must now be constructed for maximum use of sunlight and artificial lighting must be reduced. Efficiencies in lighting, heating and in the industry has to go up. There will soon be half a dozen new atomic reactors. Global warming and climate change is now reaching a crisis point but there may be a silver lining. The Chinese write the word 'crisis' using two characters, one of which means 'danger' and the other, 'opportunity'. The fear of a catastrophe opens up new opportunities. The stone age did not come to an end because of lack of stones. Similarly, the age of fossil fuels may have to become less dominant not because of lack of availability of these resources. ☺



Workshop on Statistics for National Development

A 2-day Workshop on **Role of Statistics in National Development and Indian Statistical System** was held during October 9-10, 2015 in collaboration with the Netaji Subhas Open University, Kolkata in the Seminar Hall of the University. The programme was sponsored by Ministry of Statistics and Programme Implementation, Govt. of India.

In the Inaugural Session, Prof. B. Das, Chairman, IAPQR delivered the welcome address and discussed the plan of the Workshop. Prof. S.P. Mukherjee, Mentor, IAPQR introduced the Workshop theme. Prof. S.S. Sarkar, Vice-Chancellor, NSOU narrated his interface with Statistics at different stages of his career and mentioned how he benefited from such interactions. Dr. Asish Kumar, Director General, CSO dwelt on the importance of relevant and quality statistics in national development, and touched on the Indian Statistical System briefly. Prof. S.B. Bagchi, General Secretary, IAPQR, proposed a vote of thanks.

18 participants from different Colleges, Universities and consultancy organizations, besides a few academic officers of the Netaji Subhas Open University, attended the Workshop. There were eight sessions viz., Development and Statistics, Indian Statistical System, National Income Estimation, Poverty and its Measures, Annual Survey of Industries, Trade and Development, Economic Census and Employment Scenario. Prof. S.P. Mukherjee, Dr. Asish Kumar, Dr. G.C. Manna, Addl. Director-General, CSO, Dr. Bimal Giri, Consultant, FAO, Dr. D. Sinha, Director-General, CI&S and Prof. B.K. Sinha, former professor of Indian Statistical Institute were the resource persons.

Workshop on Statistical Applications in Bio-Sciences

IAPQR, in collaboration with the Zoological Society of Kolkata, organised the above 3-day workshop during 28-30 October 2015 at the Zoology Deptt. of Calcutta University at the Ballygunge Campus. 35 teachers and research scholars from different colleges and Universities in and around Kolkata participated. Prof B. Das, Prof S. B. Bagchi and Prof A. K. Chattopadhyay conducted the workshop covering the topics Statistical Inference, Multivariate Analysis and Design of Experiments.

Observance of World Quality Day

A half-day seminar on Social Entrepreneurship was organised on 21 November, 2015, jointly by IAPQR and IISWBM at the latter's premises on the occasion of observance of World Quality Day (WQD).

In his welcome address at the Inaugural Session, Dr. B. Das, Chairman, IAPQR narrated the genesis of the event. Mooted by the European Quality Council in UK in 1989, UN declared

the 2nd Thursday of November each year to be observed as WQD. In India IAPQR was the first organisation to have started observing the event since 1990. Since then every year IAPQR organises suitable programmes of varying length, not only in Kolkata, but also occasionally in Chennai, Delhi, Bengaluru, Pondicherry too, to sensitize all concerned to practise Quality as a strategy for survival and growth and means for increased Productivity and enhanced Quality of Life.

Prof. Amitabha Sarkar, Director IISWBM, in his speech as Guest-in-Chief, welcomed the idea of choosing this theme of the seminar. He explained, by quoting Pandit Jawharlal Nehru and Dr. B. C. Roy, that social Welfare and Business



The Inaugural Session of Seminar on Social Entrepreneurship during observance of WQD, 2015



The Chairman Prof N. R. Banerjee and the speakers at the Discussion Session of the WQD (2015) programme

Management are two allied concepts in the framework of Social Entre-preneurship (SE). He pointed out that SE has a major role to play in sectors like health care, housing, education etc. He forecasted that SE will impact the society in a big way in the years to come.

Prof. S. P. Mukherjee, Mentor, IAPQR and Chairman of the session, dwelt on the relevance of SE in detail. He explained that social entrepreneurs are individuals who have innovative ideas to solve social problems. He felt that SE has a big role to play in supplementing government efforts in combating social problems like illiteracy, impure drinking water, unemployment and social tension. He called upon social entrepreneurs to come out of traditional thinking in solving these social problems.

The inaugural session ended with a vote of thanks proposed by Prof. Asis Chattopadhyay, Joint Secretary, IAPQR.

After a short tea-break, the Discussion Session started with Prof. N. R. Banerjee, Former VC, BESUS, in the Chair. The first speaker, Ms Sayantani Roy Chaudhuri of Banglanatak.com spoke on *Creating value and Changing Quality of Life at the Grassroots Using Culture-based Approach*. She elaborated on her small SE project generating employment at the grassroot level through cultural activities, whereby the quality of life has changed in the project area particularly among the women groups. Looking upon expenditure as an investment she has been successful in ensuring income for illiterate women and thereby raising the status, changing the level of education, developing sanitation system, transforming traditional art to modern art, addressing social problems such as reduction of suicide cases, bringing back girls from black night activities to normal life, and the like.

The second speaker was Mr. Sisir Das, Director, Columbus Ventures Pvt. Ltd. His topic was *Experience in Social Entrepreneurship*. A disgruntled IPS Officer, Mr. Das narrated a touching incident of how a mother and her daughter were burnt to death as a result of the mosquito net catching fire from a kerosene lamp in a village not having electricity, and this prompted him to give up his IPS job and get engaged in a mission to uplift the lot of the villagers in his locality. He has arranged through his organisation, for training of village doctors, awareness generation regarding many facets of basic health care among the villagers, low cost solar energy, bio-gas, electric crematorium and the like. He lamented that in implementing these welfare projects, he has been getting opposition from various interest groups and that no bank loan is forthcoming.

The third speaker, Dr. B. K. Datta, Director, Vivekananda Institute of Bio-technology, Sri Ramakrishna Ashram, Neempith, spoke on *My Experience in the Field of Social Entrepreneurship*. He explained the importance of maintenance of soil health for sustainable agricultural productivity, and felt that chemical fertiliser needs to be applied based on the existing status of the soil and that can be done on the basis of regular soil testing, for which facilities at present are inadequate. He stressed on the need for proper training of manpower in use of chemical fertiliser. He advocated for more use of bio-fertiliser, as also for developing water management technology to ensure



Speakers Prof S. P. Mukherjee, Prof Bikas Sinha, Dr. Bimil Giri and Dr. Asish Kumar at the Workshop on Statistics for National Development

adequate supply of drinking water, and water for other purposes throughout the year. He called upon to develop the "Lab to Land" concept, and for its success proper training of rural youth with at least HS pass in desirable agricultural practices.

The fourth speaker, Mr. Pallab Mukherjee, CEO, PSFL Speed Mark Co., in his talk on *Humanistic Approach of an Entrepreneur Yields Results* distinguished between an entrepreneur and a good entrepreneur, and observed that maintaining a peaceful atmosphere, by treating the co-workers as members of a family helps to change the work culture and work environment, promotes innovation, and the like, which ultimately benefit the organisation. He tried to drive home the point that genuine empathy, and not sympathy, for the workers / employees is what is needed for changing the society.

After each presentation, a lot of spontaneous questions and observations from the floor followed, which made the session lively and enjoyable.

The chairman of the session Prof. N. R. Banerjee at the end summed up the proceedings and profusely thanked each speaker. He opined that Mahatma Gandhi, Prafulla Chandra Ray, Vinoba Bhave and Rabindranath Tagore were social

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Speaker Ms. Sayantani Roychaudhuri at the Seminar during WQD (2015) programme



Prof S. B. Bagchi presenting a memento to the speaker Dr. G. C. Manna at the Workshop on Statistics for National Development

(1)

Dear Sir,

This is about your editorial in Vol. XXVII, No. 3 of *Communique* : ALLOPATHY OR AYUSH. I read the editorial with interest and thank you for drawing our attention to a very relevant contemporary issue. You should agree, like almost everything else in our social life, the system of health care, its implementation and role of public and private sector are debatable issues. Ideally, one would like to have an established uniform health care system all through the country available to the whole population free of cost. The quality of health care available to a daily wage earner should be the same as that available to the President of India. This service should be like that of the fire brigade : all one needs to do is to dial a certain number and help would reach his door step within minutes! As that is unlikely to happen, we will have to sort out our health care system keeping in mind the ground reality in our country. Coming to the opinion expressed in your editorial, I feel readers need a little clarification on certain points. Firstly, if survey findings are of no consequence, then why should not we stop doing surveys altogether ? I have suspected for a long time that while answering unexpected questions over a short period of time almost none of us make a right choice most of the time. Asked the same question 24 hrs later – many of us would react differently. But I suppose, the exercise of making these surveys can not be entirely useless.

Secondly, of the negative aspects of allopathy practice, one point that is stressed repeatedly is the cost factor, which is of course a very important drawback for this system of medicine. But part of the high cost is due to commercial considerations of all the stake-holders in health care, namely the physician, the pharmaceutical companies, the hospital and the laboratory establishment. These can be controlled provided administration is serious about it. Thirdly, the non-allopathic medicine business has got no regulatory authority - therefore, people remain blissfully ignorant of the contents of the bottle of medicine they are buying, which you would agree is not a desirable state in a modern civilized society.

Finally, a proper randomized controlled trial has never been attempted in the past for any treatment with AYUSH, and I suspect, responsible people in the ministry are not interested either, as they know without AYUSH vast majority of Indians will not even have the consolation of getting a 'treatment', when they are unwell and such a state for a democratically elected government will be terribly uncomfortable.

Yours sincerely

Dr. Dhiman Ganguly

Vivekananda Institute of Medical Sciences, Kolkata

11.12.2015 ☺

IAPQR is grateful to

1. Sri Krishna Nirmalya Sen
2. Professor S. P. Mukherjee
3. Professor Bikas Kumar Sinha
5. Dr. G. C. Manna
5. Dr. Bimal Giri
6. Dr. Dipankar Sinha

for their generous contribution to different funds of IAPQR during the period under review.

(2)

Sir,

This is with reference to the Editorial in July-September, 2015 issue of *Communique* titled Allopathy or AYUSH.

First, in the acronym AYUSH, U stands for Unani. This has not been mentioned.

The Department of Indian Systems of Medicine and Homeopathy started in 1993 was renamed as AYUSH in November 2003. AYUSH was upped to a status of a Ministry by the NDA Government on 10 November 2014.

Let us discuss the science content only of the two systems, viz., Yoga and Homeopathy.

Some 15 years ago AIIMS had opined that Yoga is not at all effective in curing. But it definitely helps in increasing the oxygen intake of the body (as any free-hand exercise does) and as a result it helps to keep one's body fit. A recent AIIMS study concluded that Yoga exercises provide improvements that are just as effective as traditional pulmonary rehabilitation methods in improving lung function of patients with chronic obstructive pulmonary disease (COPD). Yoga also helps rehabilitation of patients after treatment of cancer. Jerry De Luca, a science writer, points out in 'My Best Buddy Media' - "17 Precise Reasons why Homeopathy is a Fraud". An editorial in *LANCET* captioned in 2005- 'The end of homeopathy' : (2005; 366:690).

In Britain, doctors, and scientists, who point to the lack of evidence for the effectiveness of homeopathy, have publicly voiced their criticisms. This gave result and West Kent Primary Care Trust decided to stop NHS funding for the Tunbridge Wells Homeopathic Hospital—one of the five hospitals that provide homeopathy on the NHS.

Organisations such as the UK's National Health Service, the American Medical Association, the FASEB, and the National Health and Medical Research Council of Australia, have issued statements on their conclusion that there is "no good-quality evidence that homeopathy is effective as a treatment for any health condition".

Interestingly, a French Scientist Jacques Benveniste had claimed that he had proved -Water Has Memory. If this is true then nobody can deny the scientific basis of Homeopathy. 'Nature' had published the paper but Benveniste failed to show and prove his claim to a number of investigating teams Benveniste was awarded two Ig-Nobel Prizes (a parody of Nobel Prize) in chemistry. Moreover, it has been proved through scientific investigation that if any disease is cured by Homeopathy, it is only because of placebo effect.

It would be wrong if a few words are not uttered about Ayurveda. After seven years of scientific study, Centre of Cellular and Molecular Biology (CCMB), a CSIR Laboratory in Hyderabad concluded that the *principle* of Ayurveda is scientific.

The main challenges to the researchers on Ayurveda are to make the medicines scientific and come under the same rigorous clinical trials as Allopathy. This is an exorbitantly expensive research. Attempts are being made even In India to find out means so that both can meet.

Reverting back to the content of the editorial under discussion – according to it, the supremacy of one health care system should be determined by: efficacy, healing power, side effects and cost. The first three are in the domain of scientific research, where, as shown above, many of the treatments under AYUSH have failed. So, should we go by cost alone even if the system is devoid of science?

Salil Ghosh, Howrah 711101

19.12.2015 ☺

entrepreneurs in the true sense. They practically sensed social problems from different angles and came out with their solutions. He felt that humanistic approach for the development of skill by technological intervention can change the work culture in a big way, particularly in a backward area like the Sundarbans.

Sri Aniruddha Banerjee, Treasurer, IAPQR, proposed the vote of thanks wherein among others, he gratefully acknowledged the useful support provided by Prof. K M. Agarwal and his team from IISWBM, as also Dr Suvendu Mazumdar in making the event a success.

The Guest-in-Chief of the inaugural session, the Chairman of the discussion session and the speakers were presented with mementos. About 125 participants attended the seminar.

(Uday Shankar Aich and Saptaparna Mitra)

Annual General Meeting

The 44th Annual General Meeting of the Association was held on Saturday, 21 November 2015 at 5 p.m. at the IISWBM premises, to transact the usual items of business.

Prof. B. Das, Chairman of the Association, presided.

After the welcome address by the Chairman, Prof. Asis Chattopadhyay, Joint Secretary presented the Annual Report 2014-15, while Sri Aniruddha Banerjee, Treasurer, presented the Audited Statement of Accounts. Prof. S.P. Mukherjee, Mentor, narrated some of the major problems, particularly the yawning gap between expenditure and income, as also the habitat issue, IAPQR is currently facing, and invited suggestions from the members. Chairman called upon the members to share some of the routine day-to-day work by visiting IAPQR office at their spare time. A few members present e.g., Sri Jyotsnamoy Majumdar, Prof Debdulal Datta Ray, Sri Arabinda Bhar etc., responded to volunteer. 23 members attended.

IAPQR organizes programme for CSIR scientists

Responding to a request from CSIR-HRDC, Ghaziabad, IAPQR conducted a 3-day programme on Research Methodology during 30 December 2015 - 1 January 2016, as part of the 7-day training programme on Research Orientation for the candidates of AcSIR Integrated M.Tech. - Ph.D. in Engineering, at their premises.

37 candidates from 8 CSIR Laboratories all over the country (Central Building Research Institute, Roorkee - 5; Central Glass and Ceramic Research Institute, Kolkata - 2; Central Road Research Institute, Delhi - 2; Central Scientific Instruments Organization, Chandigarh - 2; National Metallurgical Laboratory, Jamshedpur - 1; Central Electronics Engineering Research Institute, Pilani - 10; Structural Engineering Research Centre, Chennai - 13; and

IAPQR news contd. to pg 8

Forthcoming events

Birth Centenary Celebrations of Prof. P. K. Bose

IAPQR has planned to organise several programmes to observe the birth centenary of its founding father Prof. Purnendu Kumar Bose during May-July, 2016.

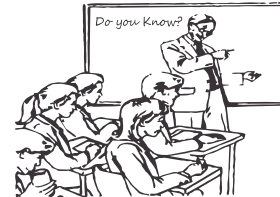
The first in the series is a whole day programme on 'Tributes to Profession P. K. Bose' to be held on Saturday, 14 May, 2016 jointly with Ramkrishna Mission Institute of Culture (RKMIC), Golpark at Shivananda Hall. Besides discussion on life and works of Prof. Bose, a P. K. Bose Memorial lecture on 'Organisational Excellence through Value-based, 'Leadership' by Prof S. P. Mukherjee, will be organised, and admirers of Prof. Bose from different disciplines and walks of life will pay tributes to him. A souvenir volume compiling these talks and writings will be brought out on this occasion. His former students, admirers and present students of different colleges and universities are welcome to attend. There is no registration fee.

A seminar on Statistics for Sustainable Agricultural Development in Prof. Bose's memory has been planned jointly with National Bureau of Soil Science and Land Use Planning (Eastern Region), Kolkata during 17 & 18 June, 2016.

Another on "Bio-technology to Boost Agricultural Productivity" jointly with Sri Ramkrishna Ashram, Neempith, will be organised in July, 2016 to be dedicated to the memory of Prof. Bose.

The details of these two seminars are currently being worked out to be notified in due course. ☺

Do You Know ?



1. Among cats, dogs, birds and humans, who see colours best?
2. It is said that the severed head of a rattle snake can still bite hours after decapitation and deliver deadly poison. Is this true?
3. How many senses do we have?
4. I never was, am always to be, no one has seen me nor will they ever see. Close to the sunset and far from sunrise, I will live on till time's own. Who am I?
5. What is JIT in Quality parlance?
6. Indian Standard *IS : 1*, first standard floated by Bureau of Indian Standard after independence, refers to the dimensions of our national flag. Since then, until now, how many standards have been floated?

(compiled by Prof. H. S. Ray)

Answers on pg 8



Dignitaries Prof. S. S. Sarkar, Prof S. P. Mukherjee, Dr. Asish Kumar on dais as Prof. B. Das, delivers the welcome address at the Inaugural Session of the Workshop on Statistics for National Development

IAPQR news contd....

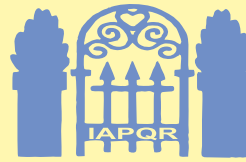
National Environmental Engineering Research Institute, Nagpur-2) were exposed to this programme that came out to be quite interactive. The topics discussed included Objectives and Steps in Research, Empirical Research and Inductive Inference, Quality of Measurements, Collection of Data, Modelling, Probability Models, Exploratory Data Analysis, Sampling Distribution of Statistics, Estimation and Tests of Significance, Categorical Data Analysis, Design and Analysis of Experiments and Analysis of Dependence.

Prof. S.P. Mukherjee, Prof. B. Das and Prof. S.B. Bagchi were the resource persons. 😊

THOUGHT FOR TODAY

We are what we repeatedly do. Excellence, then, is not an act, but a habit. - Aristotle

LIST OF NEW MEMBERS



A. Life Member

- Mr. Sugata Adhikari
SQC Unit
Indian Statistical Institute
203, B. T. Road, Kolkata 700 108
- Mrs. Tanusri Ray
Hela Bat-tala, Hatiara Road
Baguiati, Kolkata 700 157

B. Annual Member

- Professor Debdulal Dutta Roy
Psychology Research Unit
Indian Statistical Institute
203, B. T. Road, Kolkata 700 108

Answers to Do You Know?

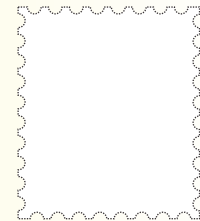
1. Cats, dogs and many other animals are colour blind, seeing only in black and white. Birds, however, generally see many more colours, some unknown to humans.
2. Yes
3. Not 5 (touch, smell, hear, see and taste), but many more. Some believe that they may be as many as 21! Some examples – pain, balance, anger, despair and temperature.
4. To-morrow!
5. Just in time.
6. 1800

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Biswanath Das (Chief Editor), H. S. Ray, S. B. Bagchi, S. K. Ghosh, A. Ghose, D. Datta, S. Banerjee
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