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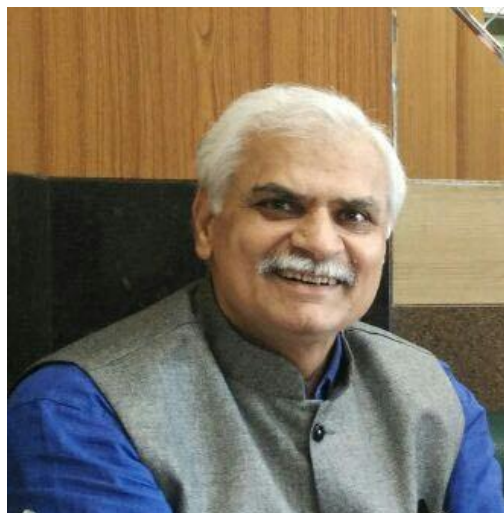M.Tech, B.Tech (Both with Honours / Distinction & Academic Excellence Award), B.Ed.

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MESSAGE AND NOTE THROUGH DESK

[A]. Mentor - Prof. (Dr). R.K. Khandal

Prof. Dr. R. K. Khandal

Brief Profile:

a. Prof. Dr. R.K. Khandal Is the President, R&D and Business Development at India Glycols Limited, a well renowned and one of its kind companies in the world manufacturing Surfactants from sugarcane molasses. Former Vice Chancellor, Uttar Pradesh Technical University, Lucknow, a Fellow of the Royal Society of Chemistry, London

b. Unanimously elected President of WAITRO (World Association of Industrial & Tech. Organizations), a UN body, 2010-2012 and 2012-2014

c. Expert member of High-level Committees of Govt. of India:

    i.   Ministry of Science and Technology
    ii.   Ministry of Child and Women Welfare
    iii.   Ministry of Food Processing Industries
    iv.   Recruitment and Appraisal committees of CSIR, DRDO etc.

d. Guided 30 PhD's from 10 Universities. 15 International Patents published 118 research papers in peer reviewed journals, five books and two edited.

e. He has received several awards; prestigious ones include:
    i.   INSME (International award for innovation);
    ii.   R.N. Bangur Memorial award for novel technologies;
    iii.   R.G. Deshpande award for popularizing Radiation processing technology;

iv.   U.P. Ratna Award, 2014 for Transforming Technical Education in U.P.

v.   Rajasthan Samman Award, 2015 from Rajasthan Associations;

vi.   Meri Dilli award, 2010 for improving the living standards of citizens of Delhi

vii.   Srishti awards for green technologies, waste management etc.

viii.   Amity Academic Excellence award for pioneering research and academics

ix.   AMAR UJALA Excellence Award for outstanding contribution to education

x.   Life time achievement award by World Environment Congress in food preservation, safety, environment protection and renewable energy,

xi.   Eminent Engineers Award by Institutions of Engineers, India

xii.   Academic Excellence Award from Engineering Watch, India, in Singapore,

Growth Path:

a. Born on September 6, 1957, he started his career in 1982, as a **lecturer in Indian School of Mines, Dhanbad** at a very young age of less than 25 years.

b. In 1985, joined as a **Group leader in a UNIDO project of Govt. of India.** Post-Doctoral research` ~ 1 year in England and 2 years in France.

c. On return from France in 1991, joined as **Manager, ICI Specialty chemicals**, an MNC and worked for developing Technologies for specialty chemicals.

d. In 1993, joined **India Glycols Limited as General Manager.** Managed team of R&D and Production for 8 years to for new products for growth of the Company.

e. From 2001 to 2012, as the **Director, Shriram Institute, Delhi** established as a leader par excellence. Developed and established a self-sustainability model.

f. **DURING 2012 – 2015, AS THE** VICE CHANCELLOR OF UTTAR PRADESH TECHNICAL UNIVERSITY, **TRANSFORMED THE UNIVERSITY INTO AN INNOVATION UNIVERSITY**.

g. 2015 onwards, Prof. Khandal is, the **President, R&D and Business Development, India Glycols Limited,** a global supplier of Green performance chemicals

h. Prof. Khandal has been associated with leading private universities and institutions as a mentor

Virtues:

Prof. Khandal is a person of eminence with unique expertise and capabilities; a rare profile covering 360° research and innovation cycle in career: as an Academician and a Researcher (Govt. and Pvt.). He knows how to convert challenges into opportunities.

[B]. Patron - in - Chief: – Prof. S.K. Singh

He is serving the nation in the field of science & technology. He has completed his graduation degree in Engineering in Electronics & Communication Engineering, from B.I.T. Sindri, in 1986 and postgraduate in Business Management from X.L.R.I. Jamshedpur, in 2004.

He has 30 years of wide experience in applied Research, Product Development and Program Management besides developing algorithms and their implementation for real-time embedded applications for signal processing in technologies like Software Defined Radio, Digital Subscriber Line, Cable Modem, Meteor Burst Communications and Satellite communications.

Background Highlights: -

- 1986 - 1997, Defence Research & Development Organization (D.R.D.O.) as Scientist

- 1997 - 2006, As Engineering Manager / Program Manager in Multinationals like, Freescale Semiconductor, Ishoni Networks, General Electric Plessey etc.

- 2006 - 2008: Cofounded a Telecom Company Hertz Tele Networks Pvt. Ltd

- 2008 - 2010: Director: Genesis Futuristic Technology Ltd, Noida

- 2010 till date: Founded many organizations till date.

- He had Co-authored a paper on the issue of inter modulation products for D.S.P. based Modulators in 2nd International Symposium on "D.S.P. for Communication Systems" held at Adelaide in 2004. D.S.P. based Modulators: Problems and Solutions.

Message from the Patron - in - Chief's Desk:-

"SANKALAN:- The Journal of Science, Technology & Humanities" (I.S.S.N. Online:- 2455 - 3557) is a Journal started with a goal to publish innovative ideas which proposes value in creating technologies for tomorrow and solving problems of today right from concept to implementation.

This Journal will try to set an example for extending opportunities to scholars of different field to publish their papers with ethics and honesty. I wish a grand success to all the stakeholders of the Journal.

[C]. Executive Editor / Publisher: - Rahul Rai

He is working as Deputy Registrar at B.I.T. Mesra, Ranchi, Jharkhand. His areas of interest are Analytics, Marketing & Entrepreneurship. He is M.B.A with Distinction Marks from B.I.T.S., Pilani, Rajasthan and B.Tech with Distinction in IT and Management. He has 06 years of industrial experience in Analytics and Research industry.

Background Highlights:-

- Worked as Academic Associate in Department of Management, B.I.T.S., Pilani, Rajasthan
- Qualified All India Level :- U.G.C. National Eligibility Test – Junior Research Fellowship (U.G.C. – N.E.T – J.R.F.) in Management in the year 2013
- Diverse Experience in various domain like Banking, Retail, Media & Marketing
- Awarded Many Prizes and appreciations in the career in several fields till date
- Organized & Participated in several seminars and events till date

Note from the Publisher / Executive Editor's Desk:-

Wishing you all a great year ahead!!!

Firstly, I will pay my gratitude to Almighty, my parents and all well-wishers with whose blessings and support we are able to start this journal "**SANKALAN:-The Journal of Science, Technology and Humanities",** (I.S.S.N. Online: - 2455 - 3557) We have started this journal publication for publishing new findings on Science, Technology and Humanities.

I hope this initiative will bring great value for academicians, researchers, students and all those who are involved in Research & Development work. We do have a highly reputed pool of advisory board members from well renowned universities, who help us in keeping high benchmark for quality and originality of our publications. Hence, I am confident that our mission to be the leading Research Journal in field of science, technology and humanities will very soon become true.

I hope very soon Buxar- Land of Rishi Vishwamitra; will soon become educational hub of Bihar.

[D]. <u>Editor - in - Chief: - Rishabh Rai</u>

He is the Editor in Chief of this Journal and working as a P.G.T. Physics and Mathematics in Carmel School, Churamanpur, Buxar, Bihar. His areas of interest are the domains of Electronics and Communication Engineering and Physics, Chemistry & Mathematics. He is M.Tech in V.L.S.I. Design specialization with Distinction Marks & B.Tech in Electronics & Telecommunication Engineering with Honours. Further, he is B.Ed. in Science stream with first class.

<u>Background Highlights:-</u>

- Awarded as the Best Innovative teacher of the year award by ISRO & NASA Delegates in the international level conference at Chandigarh, India on 29.09.2019
- Appreciated by the Govt. of India, Govt. of Bihar & Govt. of Jharkhand for the quality publication of the Journal – Sankalan: - The Journal of Science, Technology & Humanities (e - ISSN - 2455-3557), in the year 2016, 2017 & 2018d
- Appreciated by Kyutec University, Japan and Amazon, an online shopping company for the outstanding publication of the book "Be the change for best always and make difference"
- Earned the respective academic degrees in the career till date i.e. (Class X^{th} to M.Tech.) with Distinction / Honours in aggregate
- Published 20 Technical / Research / Review / Study Papers in several National / International Conferences and Journals till date
- Authored many books, chapters in various publications till date
- Awarded Honorarium & Appreciated for the Paper Publication by A.K.G.E.C. International Journal of Technology in 2016
- Academic Excellence Award, for the academic performance in M.Tech. – (2013 – 2015)
- Academic Excellence Award, for the aggregate performance in B.Tech (2009 - 2013)
- I.E.E.E. National Merit Award – 2013, for the best Paper Presentation in National Conference - E.T.E.A.T – 2013
- Project Selection in the Sixth Science Conclave – 2013, at I.I.I.T Allahabad
- Amul Vidya Bhushan Award – 2009, for the academic excellence & performance in A.I.S.S.C.E. – 2009
- Awarded many awards (Winner), recognitions, appreciations at International, National, State, District, College & School Level in various academics and cultural (Solo Singing, Writing Books, Journals etc.) events till date

<u>Note from the Editor - in - Chief's Desk: -</u>

Firstly, I am thankful to god and grateful to my venerated parents, and all those whose blessings and constant encouragement have helped me to complete this work, i.e. compilation and finalizing of the current issue of the Journal, "**SANKALAN: -The Journal of Science, Technology and Humanities**", (I.S.S.N. Online: - 2455 - 3557)**. The papers must not be published, copied in parts or whole or accepted for publication anywhere else. For more information and ideas, one must visit the **"Quality & Plagiarism Check"** for such issues, as given in the website www.sankalan.org .

The entire article will must be double blind peer reviewed by our Advisory Board and will be thoroughly checked on the Plagiarism Software if selected, may be published by completing the copyright policies with the Journal. Lastly, I want to thank all the concerned authorities who are directly or indirectly related to our Journal, and must expect that their co-ordination and support are always valuable and required for us forever.

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SANKALAN welcomes and encourages scholarly unpublished papers on various fields of Science, Technology & Humanities from students, teachers, scholars and professionals. The Journal invites the submission of papers that meet the general criteria of significance and academic brilliance. Authors are requested to emphasize on novel theoretical standard and downtrodden concerns of the mentioned areas against the backdrop of proper objectification of suitable primary materials and documents. The papers must not be published in parts or whole or accepted for publication anywhere else.

OBJECTIVES:

❖ To develop and promote academic research activities on various contemporary techno-engineering issues and trends in management and humanities.

❖ To provide a platform to discuss the problems related to the technical as well as the managerial and research issues.

The most valuable and suggestive comments of all the readers are always awaited and welcomed in order to achieve the ultimate goal. We are looking forward for your contributions. All communications must be made only in electronic form e-mailed to:

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CRISP VERSION OF THE SPECIAL ISSUE OF THE JOURNAL

5G Technology of Mobile Communications: A Review

Abhishek Kumar

Abstract – The overall demand growth in both user data rates and network capacity is the main driver for mobile communication evolution. In 5G, researches are related to the development of World-Wide Wireless Web (WWWW), Dynamic Adhoc Wire- less Networks (DAWN) and Real Wireless Communication. The technologies used for 5G are 802.11 wireless local area network (WLAN) and 802.16 wireless metropolitan area network (WMAN).

New mobile generations are typically assigned new frequency bands and wider spectral bandwidth per frequency channel like up to 30 kHz for 1G, 200 kHz for 2G, 20 MHz for 3G, and 100 MHz for 4G however the frequency bandwidth for 5 G is yet to be decided but it is expected to be nearly 5GHz.

Keywords: WLAN; 5G; GSM; WWWW; WMAN; DAWN

INTRODUCTION

MOBILE and wireless networks have made significant de- velopments in the last few years. Currently, many mobile phones have also a WLAN adapter. One may expect that very soon, many mobile phones will have Wax adapter too, besides their 3G, 2G, WLAN, Bluetooth adapters. We are using IP for generations, 2.5G or 3G Public Land Mobile Networks (PLMN) on one side and WLAN on the other, raised study on their integration. Concerning the 4G, its focus is towards flawless incorporation of cellular networks such as GSM and 3G. Multi- mode consumer terminals are seen as must have for 4G, but special security mechanisms and special operat- ing system support in special wireless technologies remain a test. Nevertheless, integration among different wireless net- works (e.g. PLMN and WLAN) is implemented in practice even nowadays. The anticipated Open Wireless Architecture (OWA)

is targeted to offer open baseband processing mod- ules with open interface parameters. The OWA is related to MAC/PHY layers of future (4G) mobiles. The 5G terminals will have software defined radios and modulation scheme and new error-control schemes can be downloaded from the Inter- net. The 5G terminal will make the ultimate selection among different mobile access network providers for a specified ser- vice. The paper gives the concept of intelligent Internet phone where the mobile can prefer the finest connections.

FROM 1G TO 5G:

Earlier and even today low speed data services are provided by 2G system which do not meet our future needs. This gave rise to demand for a new system called 3G, which promised to provide high speed data services. Recently (4G) mobile communications system LTE was developed to provide high capacity and highest rate data service for mobile multimedia which is still to run in most of the countries. The description of 1G to 4G is given in Fig.1.

1G   Voice Services
2G   Improved voice and text messaging
3G   Integrated voice and affordable mobile Internet
4G   High capacity mobile multimedia and LTE

NEED OF 5G:

The next generation mobile communications system will not be used for human interaction alone. There will be a huge growth in machine type communications, the devices will also not only be remotely controlled and managed by people, but will also communicate with one another and all this will require more reliable communication links and also lower

transmission delays. Machines which can process information much faster are needed.

Connectivity (Wireless/Wired)
High Speed
Low Cost, Low latency
Power saving systems

3G and 4G provide data to be downloaded in term of Mbps but we need to think towards Gbps now. Even though data is downloaded in Mbps but it does not meet our needs. The future is in gigabytes and even in terabytes. "Gigabit" means data reception and transmission speeds of Gigabits per second to users and machines. Again, this does not mean providing high-capacity networks everywhere, but the centers of big cit-

5G TECHNOLOGY OF MOBILE COMMUNICATIONS

ies will be the first places where the demand for a new system will be felt. The overall demand growth in both user data rates and network capacity is still the main driver for technological evolution. Higher capacities of networks will require better performance, cell densification and access to new, broader carriers in new spectrum. The capacity growth can of course be met with existing systems, but after 4-5 years, limits will be reached and 5G technologies will be needed.

CHALLENGES IN MIGRATION FROM 4G

Multimode user terminals: For 5G networks, there will be a need to design single user terminals to operate in different wireless networks. The other problem is device size, its cost and power consumption. The problem can be solved by soft- ware called radio approach.

New types of connected devices: From electricity bills to car, household appliances to shopping malls and many more will be supported by future mobile networks. There will

be wide range of new services which will run on them.

Reliability: It's really important to maintain reliability be- tween networks when we talk about future communication. Reliability requirements are very tough in industrial communication applications and for societal functions such as smart- city management and traffic safety. There will be a need to modify broadband system that is in use today.

Availability of spectrum: By 2020 there will be a need of more spectrum. Higher frequency ranges will be needed then to improve the quality of service and network. Larger band-widths will be needed enabling extremely high service levels for special scenarios.

Security: On account of various wireless networks and their complexity, one needs to adopt adaptive and lightweight se- curity methods.

Bugs: There is one thing which is to be guaranteed in 5G that is bugs. These may be found in new applications and they need to be fixed at that time.

Overlapping: Overlapping occurs when transmitter is sending some kind of signal at same frequency which affects a GPS signal.

Hacking of signals: There are many fake signals being sent out by GPS. There are some fake signals in which GPS thinks that they are sent by satellite and calculates the wrong coor-dinate. The techniques are known as spoofing. Normally the criminals and hackers use this technique.

CONCEPT OF 5G

There is a model called OSI model upon which 5G works.

The model has different layers named as Physical layer, Net- work layer, Open transport protocol and application layer.

Application Layer   Application (Services)
Presentation Layer
Session Layer   Open   Transport
          Protocol
(OTP)
Transport Layer
Network Layer Upper Network Layer
          Lower Network Layer
Data Link Layer   Open   Wireless
Architecture
(OWA)
Physical Layer

Physical/MAC layers: Physical and Medium Access Control layers have two parts i.e. OSI layer 1 and OSI layer 2, which is for the wireless medium. 5G network in mobile is supposed to be based upon these two layers.

Network layer: The network layer is based on IP (Internet Protocol). Normally there are two types of IP namely, Ipv4 and Ipv6. The Ipv4 (version4) is widely used but on the other hand it has some problems too, such as address space is lim- ited and there is no support for quality of service (QoS). The issues are fixed in Ipv6, but due to trading with larger packet header, mobility is still a problem.

There is Mobile IP standard on one side as well as many mi- cro-mobility solutions (e.g., Cellular IP, HAWAII etc.). Dif- ferent mobile networks will use Mobile IP in 5G, and each mobile terminal will be FA (Foreign Agent), keeping the CoA (Care of Address) mapping between its fixed Ipv6 address and CoA address for the current wireless network. On the other hand, one mobile network will be attached to several other mobile networks or wireless networks at the same time. In this case, mobile network will maintain different IP addresses for each of the interfaces, while each of these IP addresses will be care of address (CoA) for the foreign agent placed in the mobile phone.

Thus fixed Ipv6 will be used in the mobile phone by 5G phone manufactures. The 5G mobile phone will maintain multi-wireless

network environment. For this, there will be separation of network layer into two different sub layers in 5G which are named as Lower network layer and Upper network layer. Lower layer network is for each interface and Upper layer network is for the mobile terminal. The middle layer between the Upper and a Lower network layer is to maintain address translation from Upper network address (Ipv6) to dif- ferent Lower network IP addresses (Ipv4 or Ipv6).

Open Transport Protocol (OTA) layer: OTA layer works dif- ferently for wireless networks as compared to wired networks. In all TCP versions, segments are lost and it is assumed that segments are lost due to congestion in network, On the other hand in wireless networks there will be losses due to high bit error ratio in the radio interface. Therefore, TCP are used for the mobile networks as well as wireless networks, through which the lost or damaged TCP segment can be retransmitted over the wireless link. In 5G mobile, terminals will be suitable to have transport layer that is easy and possible to be down- loaded and installed. In such mobiles, there is a possibility to download new version which is targeted to a specific wireless technology installed at the base stations.

Application layer: The 5G mobile terminal is to provide ex- cellent quality of services over different and variety of net- works. The mobile internet users today manually select the wireless port for different Internet service without having the possibility to use QoS history to select the best wireless con- nection for a given service. A 5G phone will provide possibil- ity for QoS testing and storage of measured information in the mobile terminal.

There are different QoS parameters, such as delay, jitter, losses, bandwidth, reliability that will be stored in a database in the 5G mobile running in the mobile terminal as system processes, which in the end will provide the best suit- able wireless connection upon required QoS automatically.

FEATURES OF 5G

5G technology offers high resolution for crazy cell phone user and bi-directional large bandwidth shaping.
The advanced billing interfaces of 5G technology make it more attractive and effective. 5G technology also provides subscriber supervision tools for fast action.

The high-quality services of 5G technology are based on policy to avoid error. 5G technology is providing large broadcasting of data in Gigabit while supporting almost 65,000 connections.
5G technology offers a transporter class gateway with unparalleled consistency. The traffic statistics by 5G technology makes it more ac-curate. Through remote management offered by 5G technology, a user can get a better and faster solution.

The remote diagnostics is also a great feature of 5G technology. The 5G technology is providing up to 25 Mbps connectivity speed.
The 5G technology also supports virtual private network. The uploading and downloading speed of 5G technology will be touching the peak.

CONCLUSION

In this paper, authors surveyed 5G technology for mobile communication. The technology is going towards the high data rates. The number of use cases for a next generation mobile communications system will grow rapidly and the scenarios will place much more diverse requirements on the system. We have also defined concept for such 5G mobile networks. The architecture includes two type of networks. One is wired network and the other one is wireless network. We still see improvements and demanding requirements for spectral efficiency in terms of average bit/s/Hz/cell for ultra-dense deployments.

5G network technology will release a novel age in mobile communication. The 5G mobiles will have access to different wireless technologies at the same time and the terminal would be able to merge different flows from different technologies. 5G technology offers high resolution for passionate mobile phone consumer. We can watch an HD TV channel in our mobile phones without any disturbance. The 5G mobile phones will be a tablet PC. Many mobile embedded technologies will develop.

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Mark Lessening and Supportable Reprocess of Cast-off Elastic

P.S. KUMAR

Academician, Patna University, Patna, Bihar

Abstract -- **With increased urbanization, solid waste is constantly increasing due to more resource utilization. More sustainable approaches are needed to tackle the environmental impact of solid waste. One-third of the domestic waste is plastic. The plastic is to be either recycled or reused in different ways. The paper proposes a new avenue to reuse the waste plastic in the form of mementos and also reduces the carbon foot print to a certain extent.**

Keywords: Plastic, Solid Waste, Reuse, Carbon Footprint

I. INTRODUCTION

ACROSS, the Indian sub-continent, many conferences, workshops and seminars are conducted throughout the year. In these conferences, each and every speaker is presented with a memento made of wood. This wooden memento when observed on a nationwide scale adds to the carbon foot print of India.

This wooden memento could be replaced by a sheet of recycled plastic pasted with a paper. This paper has all the requisite details as of the wooden memento.

This way, plastic which is difficult to dispose of gets a new avenue of reuse and also tree chopping would be reduced.

II. LITERATURE SURVEY

Vanitha *et al.* dealt with the reuse of waste plastics to partially replace coarse aggregate in M20 concrete [1]. This is used in pavements and solid blocks. Each Indian generates a plastic waste of 700 grams a day per capita, on an average. This bio- degradable plastic waste amounts to 40 percent of garbage. Plastics that cannot be further degraded are finely powdered and it mainly consists of high-density polyethylene (HDPE). The specific gravity of such an aggregate is 1.04 [1].

There are two essential components of biodegradation process: that the material must be a food source for the bacteria in the disposal environment and the biodegradation must take place in a span of short time, typically six months.

Biodegradation can also occur in the marine environment if the bacteria in the seawater consumes a major portion of the plastic in a short time-span.

Agamuthu *et al.* discussed sustainability in waste management in Asian countries and pressed the need of technology transfer from developed countries, adapting to the local conditions. Municipal solid waste generation was projected to be 0.7 kg/ day/capita by 2025 [3].

Methodology: The four pillars of sustainability are to reduce,   **Page 6**

reuse, recover, recycle [6]. The article concentrates on sustainable reuse of recycled plastics. The study focuses on replacing the material of wooden mementos presented in the population sample with recyclable plastics. This opens up a new avenue to reuse plastics and thereby reduce the cost of recycling plastics. The population sample of the study is conferences,

stem measured at basal height of 1.4m [5]. The paper considers age of a tree to be 22 years and radius of a cylindrical tree at the basal area to be 70cm correspondingly [5]. The average organic carbon stock in a well-grown tree is 1.65 ton/tree [7].

Hypothesis 1: Reuse of plastics in mementos reduces the domestic plastic waste by 11.67 percent

Hypothesis 2: Replacing wooden mementos by reusable plastics reduces footprint by 0.76K ton annually

TABLE 1 -- TYPES OF RECYCLABLE PLASTICS [6]

Plastic type	Recycling Code
PET-poly-ethylene terephtalate	1
HDPE- High density polyethylene	2
PVC - Polyvinyl chloride	3
LDPE - Low density poly ethylene	4
PP-polypropylene	5
PS- polysterene	6
Other resins	7

Number of lead speakers in a conference	5
Number of speakers in a short term course	4*5=20
Number of speakers in a work-shop/Seminar	4*2=8
Number of wooden mementos in a year	500*5 +2520*20 +2520*8 =73060
Average dimensions of a memento including margins[4]	25.6* 5.4*34.29 cm= $0.00474 m^3$
Wood consumed annually	73060*0.00474 =346.32 m^3= $350 m^3$(approx)
Merchantable tree height [4]	42 feet =105 m
Merchantable tree volume [5]	V=0.42*Basal area *height .42*(3.14*(70^2)/40000)*105 = 17m^3
Trees chopped annually	350/17 =20.6= 21(approx)
Trees rescued annually	21
Carbon footprint reduced	21*22* 1.65 ton =762.3 ton
Carbon footprint of India[8]	1.04 ha/capita
World average footprint [6]	2.8ha/capita
Plastics in domestic waste[6]	30%
Domestic plastic waste reduction	30:100==350:x x=1166.7
Percentage domestic plastic waste reduction	11.67

TABLE 2 -- CALCULATED VALUES OF DIFFERENT PARAMETERS

Parameter	Observed value
Annual number of conferences	500
Annual number of short term courses	(30+30+30+120)*6*2=210 *12= 2520
Annual number of workshops/ seminars	2520

seminars and workshops in various institutes across India. The number of mementos is calculated as shown in Table 2. The tree basal area is the cross-sectional area of a tree

organic stock in the tree trunk. However, momentos made out of glass and the respective footprint reduction is out of scope of the paper. The reuse of plastics reduces the domestic plastic waste by 350m^3 annually. Thus, proves the aforesaid hypotheses. Further, the plastic could be reused with a replacable banner pasted to the plastic sheet. This reduces the plastic waste production by many folds.

CONCLUSION

The paper opens up a new avenue to reuse plastics in the form of mementos presented to numerous intellectuals. This would also reduce tree chopping thus adding to the annual footprint reduction of 0.7 kilo ton of carbon.

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