

PROJECT REPORT – THE LAHORE SCIENCE MELA 2017

Khwarizmi Science Society organized the Lahore Science *Mela* on 28th and 29th January, 2017 with the collaboration of Ali Institute of Education and Lahore University of Management Sciences. The *Mela* provided a platform to the young and emerging scientists to showcase their ideas and projects to the common population. It was an attempt to bring the non-science body of the society – especially children – closer to the world of science. The *Mela* was open for all and the visitors or the exhibitors were not charged for taking part in the *Mela*.

The preparations of the *Mela* started off by sending out the invitations to the *Mela*. During the

first two weeks of November 2016, lists of potential exhibitors from all over the country and invitation letters were sent to 160 potential exhibitors, institutions and organizations. During the following month, lists of all private schools, colleges and universities of Lahore were created. The team then invited the schools, colleges and deans of the science departments of all universities to take part in the *Mela* either as visitors or exhibitors. All invites were sent via e-mails and



postage. Letters were sent to the Secretary of School Education Department of Lahore and the Secretary of Intermediate Education of Lahore pleading them to invite all government schools and colleges working under their supervision. A total of 711 letters were sent through postage: 400 letters to principals of the schools, 154 letters to the HODs of the universities and 157 letters to the principals of colleges in Lahore. The list of universities also included some universities in Islamabad, Peshawar and Karachi.

The exhibitors started to register as soon as the invitations were posted. A week before the *Mela*, we had a confirmed list of 45 exhibitors and 42 exhibitors participated in the *Mela*. Some school students also wanted to take part in the *Mela*; it was decided that they will get a shared large space for their experiments. The team was constantly in contact with the exhibitors discussing



the logistics of their respective exhibits. In January, an anthem or a *Tarana* was produced to highlight the initiative and to send out the message that activity based education makes it easier for the children to understand the complicated phenomena of science. It was also a musical invitation for every citizen of Pakistan.

Posters, maps, newspaper ads and informative illustrations were designed. AIE provided 700 copies of the poster in A3 size. These posters were sent to universities, some schools and colleges, museums and book shops for display by mid-January. Large posters and flexes were designed and printed a day before the event. Third and fourth logistics letters were sent to the exhibitors through TCS a week before the *Mela*. The purpose of these letters was to send important instructions and maps as guidelines. English and Urdu reports were prepared to help the news agencies visiting the *Mela* understand the initiative and the nature of the event. A brochure was designed to guide the visitors with the locations of different exhibits (indoor and outdoor), auditorium and restrooms. By the evening of 27th January, 33 outdoor stalls of different sizes were established meanwhile the indoor stalls were being decorated. Some exhibitors established the exhibits on the night of 27th January while others decided to manage the next morning. Following is the list of the exhibitors who took part in the Lahore Science *Mela* and their respective demonstration/exhibits of science:

1. Airas Akhtar – **Higher Dimensional Polytopes**
2. Dr. Yasir Niaz Khan – **Easy-to-make Robots**
3. Dr. Farhat Amin – **Bioinformatics**
4. Pakistan Science Foundation – **Science Caravan**
5. RoboKids – **Robotic Games and Lego Robots**
6. ScienceFuse – **Sir Newton and Incredible Forces**
7. Punjab Information Technology Board – **E-learning**
8. Suleman Shahid – **Brain-Computer Interface System**
9. Pakistan Meteorological Department – **Weather Station**
10. Talha Manzoor – **Centre for Water Informatics and Technology, LUMS**
11. Pakistan Science Club – **General Science**
12. Dr. Muhammad Imran – **Explore Inside Out**



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13. Dawood Foundation – **Scientific Activities**
14. Ahsan Khan – **Zoological Models by University of Swabi, KPK**
15. Zorays Solar – **Alternative Energy Sources**
16. Ahmed Azam – **LED-based Phototherapy Unit for the Treatment of Neonatal Jaundice**
17. Ahmed Hembel – **Electric Car**
18. Muhammad Safeer Abbass (Mushpreneur) – **Mushroom Farming**
19. JF Labs Pakistan - **SpiderBot**
20. PCSIR – **Scientific Achievements of PCSIR**
21. Zaheen Machines – **Jal Bujh**
22. Muhammad Huzair Awan – **Artificial Intelligence**
23. Syed Hashir (ITU) – **E-Naka**
24. RADEC Technologies – **3D Printing**
25. Lahore Astronomical Society – **Observation of the Sun, Stars and Planets**
26. Furqan Haider (UET) – **Technology meets Creativity**
27. National Museum of Science and Technology – **Science Exhibits and Models**
28. Ashar Malik – **Atomic Motion and Heat**
29. TEVTA – **Scientific Models**
30. WWF Pakistan - **Conservation**
31. LUMS Biology Dept. – **Unraveling the Secrets of Life**
32. IBA Sukkur and other colleges – **Scientific Models**
33. Sikander Ali – **Modern Science with Advancement of Technology**
34. Horizon Universal Education System – **Scientific Models**
35. DPS Lahore – **Scientific Models**
36. Teach Education HRD – **Scientific Models**
37. LDA – **Scientific Models**
38. National Book Foundation – **Book Stall**
39. Arsalan Khan – **Carbon Dioxide and Global Warming**
40. Hasnain Hayder – **Steam Power**
41. Khwarizmi Science Society – **Scientific Experiments**
42. UET Science Society – **Conversion of Wind Energy into Electrical Energy**

In addition to this list, some school students visited the *Mela* with their scientific models. They were given some shared space along with other schools.



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The *Mela* started off with the recital from the Holy Quran, followed by the National Anthem and a speech by the President of Khwarizmi Science Society, Dr. Saadat Anwar Siddiqi. Mr. Babar Ali bestowed us with his presence as the chief guest. The *Mela* started at 9 am and lasted till 6 pm on both days. However, the Lahore Astronomical Society continued their observations after 6 pm on the first day.

As recorded by the newspaper The Nations, ten thousand people visited the *Mela*. We received excellent response and cooperation from the exhibitors and the visitors. Our volunteers assisted the team in event-day logistics. The exhibits remained open all day with a lunch break from 1 pm to 1:45 pm. Ten food stalls were put up in the smaller ground at AIE, the exhibitors and the visitors visited the stalls for refreshments. Lunch was provided to the exhibitors by the Khwarizmi Science Society with the help of AIE.

In the Ali Auditorium, documentaries were being screened periodically by Punjab Information Technology Board, World Wildlife Fund and the Dawood Foundation. The department of Water Informatics of LUMS conducted a symposium on the '**History and Future of Indus Water Basin: Connecting Water to Culture, Economy and Technology**' at the Ali Auditorium on the second day of the *Mela*. Around 100 guests were invited and the auditorium was filled with students, researchers and historians.

The event concluded with a closing ceremony where the president of Khwarizmi Science Society, Dr. Siddiqi and the General Secretary, Dr. Sabieh Anwar shared their thoughts and feelings about the event and future perspectives. Dr. Hamid Zaman shared his sentiments with the media and the visitors. Some of the exhibitors also volunteered to share their thoughts and comments about the





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event and the status of practical science in our society. We received very positive feedback after the *Mela*. The feedback reflects how a small event can have a humongous impact on the public, especially children.



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APPENDIX – I

On January 21, 2017, *The Nation* published following article about the Lahore Science Mela:

“LAHORE - A two-day Science Mela 2017, featuring innovative ideas relating to science and human life started here yesterday.

A number of panel discussions, lectures and science exhibitions are also part of the event, which is organised by the Lahore University of Management Sciences in collaboration with Khwarizmi Science Society at Ali Institute of Education, and attended by more than 10,000 people on the first day.

Khwarizmi Science Society is a non-profit organisation, which is aimed to promote science culture in Pakistan's educational institutions and in general public. Dr Sabieh Anwar, of the society, said this is not an ordinary science fair as it would help bridge the gap between scientists and public.

Syed Babar Ali, of Lums, highlighted the need for engaging citizens of all socio-economic strata around inquiry, creativity and a passion for innovation. “The Lahore Science Mela will be a major step in this direction,” he added.

National Museum of Science and Technology, a public sector institution, exhibited different technologies. Moreover, formulas of mathematics and models of different engines were also presented for the show.

IBA Sukkur also presented different projects, including the drone technology which attracted many visitors. Students of IBA Sukkur told *The Nation* that this drone could be used for different purposes. “It can also measure silt at different points of the canals and supports the irrigation for de-silting purposes.

“It also provides information on different insects like dragonfly, praying mantis and honey bee etc. If we decrease use of pesticides, the population of such beneficial insects could be increased,” they added.



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This drone is being used by KP Police to measure mob strength and their activities. Moreover, it can be easily controlled from three miles radius. It may set on Google maps to automatically perform its function, the presenter said.

Also, the Lums project on irrigation attracted special attention from the attendees. The Centre for Water Informatics and Technology (WIT) developed a project and successfully implemented in Bahawalngar. After experimenting it in that district for one year, the WIT started another project at Kasur.

Muhammad Waqas, a project research associate, told The Nation that the WIT has installed its equipments at different canals and water outlets and recorded water flow. “A smart water meter has been developed at Cyphynets Labs to gauge open channel flow and its deployment on 17 distributaries. The system also presented full year graphic data, reflecting distribution of canal water and its measurement.

“The centre also shared the data with the Irrigation Department which proved to be highly beneficial. Not only water theft cases were reduced but equal distribution of irrigation water was made possible,” he added.

According to the researcher, the WIC would further research on water courses and flow of water on them in district Kasur. The centre also exhibited drone technology used for different purposes.

The PCSIR staff, at their stall, said that the council provides information on different things like shampoos etc. before starting any brand the public could consult the council.

Al-Khwarizmi Society’s Ruben’s Tube was also centre of visitors’ attention. The flames were dancing on the sound waves. A special song, titled ‘Chalo Meray Sath’, sung and composed by Khawar Javed, was also presented by the Society.

On the occasion, Pakistan Astronomical Society President Umair Asim said that 127mm apochromatic refractor telescope with a solar filter has been placed at the LSM where visitors could have a chance to see Planet Venus. He highlighted that there is a lot of potential in the astronomy field and high time research should be done to explore the untouched avenues of astronomy.



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“The mysterious sky above has many secrets and Pakistan Astronomical Society has been keenly working on the betterment of the astronomy field of study in Pakistan,” Umair Asim said, adding that sun could be easily viewed through telescope in day time on Sunday (today).

Four documentaries on digital education, preservation of life were screened by Dawood Foundation which gave glimpse of the solar system at Ali Auditorium.

Besides all of them, many other societies and organisations including WWF, National Book Organization book fair, Punjab Information Technology Board, Bio information, Pakistan Science Club, Pakistan Science Foundation, Science Museum Lahore, National Museum for Science and Technology Lahore, Pakistan Metrological Department, Lums Biology Department, Dawood Foundation, Cosmetics Institute of Information Technology exhibited their science projects.

Furqan Haider, from University of Engineering and Technology Lahore, exhibited his project which could measure the Richter scale.

Ahmed Humbal, from Lums, showcased his electric car. Syed Hashir, from Information Technology University, showcased his projects on robotics.

JF Labs exhibited a stall in which they showcased how robots would help to prevent from the contingencies.

Dr Yasir Niaz Khan, of University of Central Punjab, explained process of robot making.

Khurram Naveed, a visitor to Science Mela, said that it was a general perception that science was considered boring and a dry subject but this Fair proved to be fun to me. “I never saw Planet Venus. All I have seen of it in NASA images but here through a telescope I am able to have a close look on the planet,” he added.

The Lahore Science fair will conclude today.

Earth’s Twin

With 127mm apochromatic refractor telescope, having a solar filter, visitors saw Venus which is the second planet from the Sun, orbiting it every 224.7 Earth days. It has the longest rotation period of any planet in the Solar System and rotates in the opposite direction to most other



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planets. It has no natural satellite. Built by IBA Sukkur students, this drone can measure silt at different points of the canals and supports the irrigation for de-silting purposes. Easily controlled from 3-mile radius, the drone also provides information on different insects like dragonfly, praying mantis and honey bee.

JAVED IQBAL / FAIZAN ALI WARRAICH

Following the *Mela*, some of our team members also jotted down their sentiments and reflections about the *Mela*. Dr. Hamid Zaman wrote the following account for *Express Tribune* on January 30, 2017:

Mela Memories

“It started nearly five years ago. In the spring of 2012, I was asked to speak, at the First Parish Church in Cambridge, MA. It was not a religious sermon or a discussion of life as a Muslim, instead it was an event called “Big Ideas for Busy People”. I was part of a lineup of scientists who were going to explain the big ideas in their work, to the general public, in five minutes. The audience had people from all socio-economic backgrounds, students and teachers, grandmas and babies, scientists and non-scientists. This particular event was part of a weeklong activity called Cambridge Science Festival, a celebration of science for everyone.

This idea of science for citizens made a profound impact on me. I wanted to create an avenue for people to become curious, to ask questions and to inspire. For a while I toyed with the idea of doing something similar in Pakistan. It wasn't until last January that the idea of Lahore Science Mela finally crystallised. It was modelled after the Cambridge Science Festival, but with local flair and flavour. I shared my idea with Dr. Sabieh Anwar, a Professor at LUMS and someone who is deeply passionate about science engagement. Sabieh and I wrote the plan for the Mela and developed a budget. Syed Babar Ali, one of the most noted philanthropists and champions of education of the country, agreed to financially support the entire endeavour. As the wheels began to churn, we started forming a local team. Dozens of people worked with the local team in Lahore and hundreds more volunteered. 28th and 29th of January were finalised as the dates, and the grounds of Ali institute and the adjacent building as the venue.

Our nascent effort had had three fundamental goals. First, it had to be free and open to the public. Whether you were the elite or the working class, a housewife or a toddler, everyone was welcome. The Mela was for the people, not for any dignitaries, so there was no fanfare with inauguration. Second, we wanted it to be an event that celebrated science and not ideology.



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Third, it was an event that focused on ideas and projects, innovation and inspiration. The goal was to have a family-friendly event, and not a competition between individuals on who had the coolest project.

Up until the last day, we were not sure how many people would show up. The weather was also highly unpredictable and continuation of showers of that had drenched the city in the previous week would have ruined the whole effort.

But it all worked out. In the crisp morning air and under a smiling sun, we started the event bright and early on Saturday the 28th. People started trickling in. Families and individuals, boys and girls with neat uniforms came in droves and thronged to the booths. Estimates put the numbers in several thousand (ten thousand according to the newspaper *The Nation*) just on the first day. The second day was equally exciting and busy and attracted families from all social sectors. CEO of a local pharmaceutical company brought his daughter who was thrilled, and so was a police constable who came to me and told how excited he was to bring his whole family on his motorbike.



The Mela was a first step and had limitations and imperfections. Many things, both in the science and the management of the event, can be improved, and we hope to learn from this experiment. Yet, it showed us that there is a deep hunger for curiosity and pursuit of knowledge that remains untapped. It also showed us that science can be a great equaliser, across gender, social status, ethnicity and sects. The event also brought the best in our young volunteers who spent countless hours, not because of glory or a salary, but because they believed in the event.

For me, the most inspiring moment came late on Sunday afternoon, when a very young boy, jumping with excitement after visiting an exhibit, told his dad, “Baba, I feel like a scientist”.

That moment alone was worth all the effort of the whole year.”



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A science communicator, Muhammad Hamza Waseem, wrote this diary entry for IET (Institute of Engineering and Technology) after the *Mela*:

Hamza's Diary Entry – Winter 2016

“ In a community where grades are considered the main proof of success for students, indulging oneself in co-curricular and extra-curricular activities is highly frowned upon. I chose to be different. I rebelled not because I did not do well in classes but because I believed in the beauty of the causes I was part of.

During the third semester of my electrical engineering degree, I joined one of the most beautiful initiatives of science outreach in the country – the Khwarizmi Science Society (KSS). It all started when I had the chance to speak with Dr. Sabieh Anwar - an experimental physicist - during a tea break at the first National Symposium on Astronomy, organised by the newly formed Astronomical League of Pakistan. Dr Sabieh, one of the founding members of the KSS, has been actively involved in science outreach for about 20 years. It was inspiring to see how he was able to actually bring science to the public while staying an active researcher and educationist as well and I invited him to contribute an article to Technopolitan, the annual magazine of my university's IET student chapter.

Developing a science mela

A few days after the symposium, I received a call from him asking if I was interested in helping to organise the first Lahore Science Mela festival. In Pakistan, melas are festivals/fairs, but a 'science mela' was alien to me; I did not know then what he really meant. Yet I was so overwhelmed with joy at the offer that I replied with a yes!

The Khwarizmi Science Society and the Ali Institute of Education were the major bodies organising the event. After a couple of meetings with Dr. Sabieh, it became evident that a lot of effort and dedication had to be put in for the mela. The idea was to present science in its most accessible form, through interactive





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demonstrations, lively experiments and visually appealing models to the diverse Pakistani community, regardless of any boundaries like age, gender, class.

A national celebration of science

A national celebration of science at such a scale was unheard of in the country. With all the uncertainties haunting us, we started work four months before the mela. Dr. Saadat Anwar Siddiqi, president of KSS, and Dr. Hamid Zaman, professor at Boston University, were already on board as the pioneers and a few science graduates and undergraduates had also joined the team.

We invited individuals, educational institutions, hospitals, museums, pharmaceutical companies, science outreach organisations and technological start-ups and, in the end, roughly 45 stalls were arranged, each depicting a specific domain of science and adding to the spectrum of the festival.

The long stream of efforts bore fruit on the morning of January 28th when the event kicked off with the national anthem at the Ali Institute of Education. Scores of schools, hundreds of families and thousands of individuals poured in just on the first day of the mela.

Where the attendees were able to see the macro-cosmos of stars and galaxies via telescopes, there they also had the chance to see the micro-cosmos of living cancer cells through microscopes. Young and old alike gathered excitedly around the tables exhibiting fuzzy chemical reactions and mini-blasts as if they were magic shows.

Interactive displays

Even grade five kids were able to learn the concept of dimensions and the Mobius strip through 3D models. Exhibits of a miniature working weather station and seismograph were highly informative for the audience, plus disaster management robots and real time image processing projects were perhaps for the first time witnessed by the general public.

Educational institutes from around the country also participated in the mela. It was heart-warming to see school and college students travel hundreds of miles to exhibit their innovative science projects and experiments. The festivity rose exponentially on the second day when people learned about aerodynamics by launching water rockets.



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An inflatable planetarium and a mobile laboratory were also hallmarks of the two-day event. Another nucleus of people's attention was fire dancing to the beats of the anthem prepared exclusively for the mela.

The gleeful memories of the mela still run through my mind as I pen down these words. Besides working on the mela, I was able to complete semester projects and do well in the exams, but it is the Lahore Science Mela 2017 that will always symbolise this semester for me.”



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APPENDIX II- FEEDBACK

It was an honor to receive a very positive feedback by the visitors and the participants. Since it was the first of its kind attempt, it was bound to have imperfections but the encouraging feedback motivates us to organize similar and even better events in future. Following are some feedback forms we received right after the *Mela*:

Feedback form

Name: Rajib Ali

Profession: Education/teaching

Phone: 00923335646132

Email: principal.ubauro@ibacc.edu.pk

Role: Exhibitor

Feedback/Comments:

The Lahore science Mela initiative is a great idea in contemporary Pakistan because new generations need to be provided real science exposure that may be integrated with the inquiry and daily life experiences. It was the opportunity for thousands to understand doing science, knowing science and growing through science.

What did you like the most about the event?:

I like the way event was organized like:

- 1) it was open for all segments of society
- 2) The way students are doing science
- 3) the interaction and discussion and questioning /answering between the the audience and exhibitors
- 4) it was like an open house exhibition.



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What suggestions would you like to give so as to organize the event in a better way next year?:

we need to organize it better as follows:

- 1) involve industry to support the best ideas for further research.
- 2) involve sponsors to create the opportunities for consolidating the idea for the further /longer benefit of the society through research support in enhance the skills for technological development .
- 3) government bodies may take this opportunity to develop policy for paving the way towards the indigenous technology development through Lahore Science Mela.

Would you like to join again next year?:

Yes

On a scale of 1-10, how would you rate the experience at the Mela (1 being not good and 10 being beyond expectations)?:

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Feedback form

Name: Sikander Ali

Profession: Academic Coordinator/Instructor Computer

Phone: 03337154485



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Email: sikander.ali@ibacc.edu.pk

Role: Exhibitor

Feedback/Comments:

Lahore Science Mela 2017 was a very huge and remarkable step taken by KSS and other partners for objecting Science and its usage to all over the nation. Not only promoting science, but also this event also showed its culture, relation and commitments which attracted every visitor over there. This event was organized and mainly focused to highlight science research inquiry models, problematic and problem solving project which would eventually beneficial to any country if they are willing to utilize LSM's projects and ideas.

Being an employee of Sukkur IBA and resident of Sukkur, I would like to add that coming from another province with difference science projects had surely made our students confidence at their peak level and inshAllah with this kind of confidence and achievement, they would be able to perform any where.

What did you like the most about the event?:

The good and appreciable thing for event was to exhibit science project/models, research and other science related thing from beginner level to professional level which attracted many visitors in that event. There were many projects which captured the attention of schools children and this was the beauty of LSM because students are the prime success of any nation and by observing and learning all science material in event, they can come up with the new idea for their school, colleges and most importantly for country.

What suggestions would you like to give so as to organize the

Entire event was properly managed and established especially outer area of exhibition but just want to add



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event in a better way next year?:

suggestions that there should be proper planing and management for indoor capacity and exhibition.

Would you like to join again next year?:

Yes

On a scale of 1-10, how would you rate the experience at the Mela (1 being not good and 10 being beyond expectations)?:

9