

Xavier's Resource Centre for the Visually Challenged (XRCVC)



Annual Report

June 2016 – May 2017

St Xavier's College,
5 Mahapalika Marg,
Mumbai 400001
Tel: +91 22 22623298 /22626329
www.xrcvc.org



The XRCVC's Annual Report for 2016-17 (June to May)

One of the key fundamental rights guaranteed under the Indian constitution is the right to equality.

Yet, do persons with disability in our country enjoy this right in the same manner as their able-bodied counterparts?

Is our education system inclusive?

Are our work spaces inclusive?

Is our infrastructure inclusive?

Are our public spaces inclusive?

Though it has been several decades since the concept of inclusion of persons with disability in our everyday lives has become a part of the public discourse, the answer to these questions is a resounding no.

A truly inclusive society is one that embraces and systematically respects the rights and dignity of all, in which every citizen has an opportunity to fulfil his or her aspirations.

And this is where the role of organisations like the Xavier's Resource Centre for the Visually Challenged (XRCVC) (www.xrcvc.org) becomes critical.

The XRCVC is a resource and advocacy centre for visually challenged persons. As an enabling unit on campus at St Xavier's College (Autonomous), Mumbai, it endeavours to transform lives both at the micro and macro levels. Along with providing direct and indirect support to visually impaired persons at the micro level, it also works closely with government agencies, corporates, researchers and educational institutions on advocacy and sensitisation initiatives at the macro level.

XRCVC disseminates information about its work to members and other stakeholders on an almost real-time basis through its website (www.xrcvc.org) and on social media through its Facebook page (XRCVC—Xavier's Resource Centre for the Visually Challenged) and Twitter handle (@XRCVC).

Put simply, the centre's objective is to empower visually impaired persons all over the country. During the period June 2016-May 2017, we took significant steps to achieve this objective.



(Left) A training workshop at XRCVC Viviana Extension; (right) the new, heavy-duty Index Braille Embosser at XRCVC

Our membership base expanded to 587 persons during the year. We were also able to touch—and hopefully transform—thousands of lives across the country through our advocacy work, particularly in the areas of education access, financial access, print access and independent living (see section sub-titled ‘Advocacy’).

XRCVC set up an additional training room in St Xavier’s College during the year, and many of the centre’s training workshops are now conducted there. In June 2016, XRCVC-Viviana extension in Viviana Mall, Thane celebrated its first anniversary with an event where Plectalk Vachaks (an accessible e-book reader) were distributed, followed by a training workshop with NVDA Espeak.

Like in the previous academic year, our activities through the year were channelised through our restructured triad of work:

- Direct Support Services
- Advocacy
- Awareness

Given below is a summary of our activities in 2016-17 under each head.

Direct Support Services

The XRCVC offers a range of direct support and training services to persons with vision impairment, caregivers, educators, and institutions.



1. Volunteer Support: Despite all the technology and advancements, human assistance cannot be eliminated completely. The XRCVC provides volunteer services for:

- Reading
- Converting material into accessible formats – through typing, scanning, editing, recording
- Examination taking – scribe facilities
- Teaching – for any subject

Depending on the member's needs and requirements, the XRCVC provides volunteers on an annual basis for regular support or on a one-off basis for short-term periods.

There were 117 volunteers working with us through the year, sourced from the Social Involvement Programme (SIP) of St Xavier's College (Autonomous). In addition, volunteers were enlisted for a short term on need basis for awareness programmes like Antarchakshu.



Images from Antarchakshu 2016 at IIT Bombay

Technologies

The XRCVC houses the latest and the most exhaustive list of assistive technologies (AT) to be explored by visually challenged persons — as also employers, government bodies and any other group that would like to know more about AT. Anyone is welcome at the XRCVC, preferably with prior appointment, to explore our full range of assistive technologies and their use.

Like every year, we procured a wide range of new technologies in 2016-17. Some of these include a heavy-duty Braille Embosser (Index Fanfold DV5), additional Perkins Brailers, a Braille Labeler, Sony LED TV, Infty Reader, HP Scanjet 2500 F1 ADF+Flatbed Scanner, Angel India e-



book readers, daisy players, Brother DCP-L2541DW Multifunction Printer, Geometry kits, and low vision aids such as Ruby Magnifiers, Compact 7 HD, Clearview C HD TV, Magic HD screen magnification software, Zoomtex Magnification-cum-reading software, and Magic Large Print Keyboards. We also replaced a large number of older laptops and desktops with newer machines.

Training

The XRCVC imparts training in Computers, the use of specific assistive devices, Braille, Orientation & Mobility, Maths & Science, English language and Life skills through various training programmes. These are available for diverse learner groups – visually challenged persons, special educators, teacher trainers and other stakeholders. With the right skills and know-how, independent living and working is an increasing reality for persons with vision impairment.



(Left) A training session at XRCVC; (right) Shekhar Manjulkar receiving the Lions Club of East Bombay Scholarship at XRCVC

Our comprehensive and revamped training schedule in 2016-17 ensured that our Special Educators and trainers had their hands full throughout the year. The training sessions during the year included customised workshops by various members of the XRCVC team including Calveena D'Sylva, Neha Trivedi, Rebecca Carvalho, Mimansa Vahia, Aurealia D'Mello, Sushil Pandit, Shizanne D'Mello, Vikas Dabholkar, Keshavan Nadar, and Krishna Warriar.

These training sessions were held at the XRCVC and the XRCVC-Viviana Extension as well as at schools.



Through the year, the XRCVC's training services reached out to 1093 persons. (see Table 1).

Table 1: Training Services June 2016 – May 2017

Direct Training	No of beneficiaries	Indirect (Stakeholder) Training	No of beneficiaries
Computer & Assistive Technology (AT)	299	Computer & AT	10
English	16	Education	68
Orientation and Mobility (O&M)	23	TOT – I for INCLUSION	518
Activities of Daily Living (ADL)	8		
Education Including Mathematics & Science Support	151		
Total	497	Total	596

Personal and Career Guidance

Guidance services were provided to members and their families to identify needs, interests and aptitudes as also troubleshoot and cope with concerns.

Scholarships

The Lions Club of East Bombay Scholarship for the year was awarded to our member Shekhar Manjulkar, for being the most deserving visually impaired student graduating from St Xavier's College, Mumbai.

Recognising the high costs for higher education and assistive technologies, the XRCVC provides scholarship and access technology lending schemes to deserving students. New higher education avenues have been pursued by the visually challenged over the last decade. Along with new opportunities come new costs of higher education courses. Similarly, whilst assistive technologies and computers have provided immense aid to the visually challenged, what is often considered a luxury for sighted students is a necessity for a student with visual impairment.



Sports and Recreation

Oftentimes, recreation and sports get left out in discussions on lives of persons with disabilities. However, these are as integral a part of life for persons with disabilities as for the non-disabled.

Recognising the value of sports and recreation, the XRCVC works on creating innovative opportunities and events. The XRCVC Recreation Club conducted regular fitness and training sessions under the supervision of Dr Thomas Pires, Sports Director, St Xavier's College.



Trekking and indoor training sessions conducted by the XRCVC Recreation Club

Besides, the XRCVC team organised and participated in many sports activities during the year.

A summary of these is given below:

- Two teams from XRCVC — featuring boys and girls, respectively — participated in the All-India Blind Football tournament organised by Snehadeep Trust at Game Changers football ground Mathikere, Bangalore in April 2017. Sports Director Dr Thomas Pires accompanied the teams.
- XRCVC member Rahul Gajjal also participated in a national training and selection camp for football held in Kerala.



Advocacy

Ensuring environmental access is a key factor in determining that vision loss does not result in a disability. XRCVC's advocacy initiatives work in four main areas to create accessible environments: Print Access, Financial Access, Education Access, and Independent Living.

Print Access

The access to printed works for the visually challenged depends on its availability in accessible formats and the permissibility of the legal systems to convert material to accessible formats. The XRCVC has been working relentlessly to overcome these challenges.

During this period, the XRCVC produced 91 DAISY books totaling 5911 pages (including many in full-text-full-audio format). All accessible DAISY titles are uploaded onto a national accessible online library (sugamyapustakalaya.in).

Some of the events that took place or were conducted under the Print Access initiative during the year are appended below.



(Left) A training workshop at XRCVC; (right) a sensitisation workshop at Sanofi Pharmaceuticals, Mumbai

- Dr Sam Taraporevala, Sushil Pandit, and Aniket Gupta participated in the launch of Sugamya Pustakalaya (India's online accessible library) in Vigyan Bhawan, Delhi in August 2016. An updated edition of XRCVC's publication 'The ABC of Inclusive Publication' was also released on the occasion by the Government of India's Human Resources & Development Minister, Mr Prakash Javadekar. Additionally,



Dr Sam Taraporevala and Aniket Gupta met Mr Javadekar in December 2016 and requested him to actively champion the Sugamya Pustakalaya initiative.

- XRCVC worked closely with Benetech, a global non-profit social entrepreneurial venture harnessing the power of technology for social benefit on many print access-related initiatives.
- Also followed up with vendors who could create accessible books.
- In August 2016, Dr Sam Taraporevala, Sushil Pandit, and Aniket Gupta attended the board meeting of the Daisy Forum of India (DFI) in Delhi.
- In September 2016, Dr Sam Taraporevala set up a system with Mr Vivek Mehra, CEO and MD of Sage Publications, so that he could contribute to the cause of inclusive publishing in a formal manner through networking with other publishing houses. A book request system with Mr Mehra's office was also established.



(Left) A team from UGC visits XRCVC; (right) a class in language and communication skills at St Xavier's College

- XRCVC started the system of providing Braille Bills to Reliance Energy and also provided the second phase of feedback on accessibility to their App.
- In February, XRCVC, Bookshare, Daisy Consortium, Daisy Forum of India and Sightsavers conducted a workshop on inclusive publishing for local language publishers (Marathi, Gujarati) at St Xavier's College. There were seven participants.
- Dr Sam Taraporevala and Aniket Gupta participated in the National Conference on Review of Bharati Braille and attend two meetings of the Braille Council of India, in February 2017 and March 2017, respectively.
- In February 2017, Dr Sam Taraporevala, Sushil Pandit, and Aniket Gupta met a representative from *National Atlas and Thematic Mapping Organization* (NATMO) to discuss accessible content creation of diagrams.
- A session on XRCVC's Accessible Book Production Standard 1.0 was conducted for 18 participants at Cygnet Infotech Pvt Ltd in Ahmedabad in March 2016 by Rebecca Carvalho and Shizanne D'Mello. These guidelines, with modifications, are to become



standard for NGOs involved in book production. This also included a Training on creating Accessible Math Books and an orientation on the use of LaTeX.

- The internal Guidelines for XRCVC's Book creation process (XRCVC's Accessible Book Production Standards 1.0) were modified for a larger audience and the same were uploaded on XRCVC's website in March 2017. Alt text was added and an accessible copy of the same was created as well.



(Left) A workshop at XRCVC Viviana Extension; (right) the release of 'The ABC of Inclusive Publishing' by HRD Minister Prakash Javadekar during the launch of Sugamya Pustakalaya in Delhi

Testing and Research

The following accessible softwares / devices were tested during the year by / at XRCVC.

- XRCVC conducted regular discussions with Assistech, IIT Delhi team and with Innovision (IIT Bombay) to evaluate the work on the Refreshable Braille Display devices being developed at both institutions.
- An IDC (IITB) student tested a prototype of his accessible date picker with VI students from St Xavier's College in July 2016. He is trying to build a date picker that can be used by all, including visually impaired people.
- During the same month, Dr Sam Taraporevala and Prashant Naik attended a meeting at Mantralaya called by the Maharashtra government to discuss assistive devices to be provided to blind and low vision persons. Later, they compiled a list of such special devices and sent it to the ministry of social justice.
- In August 2016, a team from Lotus College of Optometry (Juhu) visited XRCVC to conduct preliminary tests for a magnification device with students. They are planning to make a device which can be used by visually impaired persons to carry out their daily activities.
- In December 2016, the centre helped two IDC students to put together a field study for their project, 'Packaging and Visual Impairment'.



- During the same month, Amitabh Sarkar from 5 Feathers Media visited XRCVC to discuss Captcha accessibility.
- In January 2017, Hemant Seta from Band visited XRCVC to discuss the accessibility of his app. Band is being positioned as an alternate Whatsapp.
- During the same month, research was carried out by XRCVC staff on Wikki Stix local production, and the first set of the stiks were made ready.
- Research was also undertaken for accessible rubber tiles during the month. The first phase was completed during the month—where alternatives to the Bayers chemical for cheaper production were identified. Besides, Baishali Gupta and Prashanta Mallik from Covestro made multiple visits to XRCVC during the month to showcase the accessible tactile tiles made by their company.
- Additionally, the centre's 3D printer was shifted to its new location at the IITB-Monash Research Academy, Powai in January 2017. XRCVC and the Academy have entered into a collaboration where the latter will take responsibility to maintain and run the printer.
- Neha Trivedi had an interaction with Abhijit Patwardhan in February 2017 to share ideas on XRCVC's education project. He is currently at a Fellowship in Stanford trying to set up a company for 3D printed models for learning.
- During the same month, the website of Tata Institute of Social Sciences (TISS) was tested for accessibility.
- In April 2017, students from Agnel College tested an app they are developing for independent navigation using Beacons.
- The centre also provided Gujarati Text-to-Speech feedback to Suresh Bazaj.
- An online recruitment test by Deloitte was tested for accessibility.
- IIT Delhi tested its Tactile Diagrams being created for Class 9 Science NCERT Textbook.

Reading Without Seeing

The XRCVC had launched an extremely effective national-level awareness programme in 2012 under the banner of 'Reading Without Seeing', which takes access technologies to blind and low-vision users across locations, and ignites in its audiences the curiosity and basic knowledge to begin their journey of accessing the printed word independently. The programme equips participants with the basic knowhow of a host of assistive technologies.

The programme gained added momentum this year with 12 workshops reaching out to 240 persons. These workshops were conducted by the XRCVC team comprising Sushil Pandit,



Keshavan Nadar, Aniket Gupta, Vikas Dabholkar, Calveena D'Sylva, Shizanne D'Mello, and Rajni Pandit.

Additionally, XRCVC provided some accessible technology (AT) equipment to a social organisation named Vasudev Ved Pratishthan so that they could showcase the same during their various programmes and exhibition on AT conducted in Malaysia.

Table 2: Reading Without Seeing (RWS) Workshops (June 2016 – May 2017)

No.	Organisation Name	Venue	Date	Participants
1	Thane (XRCVC Members)	XRCVC-Viviana Extension	12-Jun-16	13
2	Thane (Vision Insight Foundation)	XRCVC-Viviana Extension	26-Jun-16	23
3	Thane (RCI CRE Teacher Trainees of NAB)	XRCVC-Viviana Extension	30-Jul-16	32
4	Thane (NMMC-ETC Navi Mumbai Municipal Corporation)	XRCVC-Viviana Extension	15-Oct-16	17
5	Thane (NAB TCTVH)	XRCVC-Viviana Extension	08-Nov-16	9
6	Thane (XRCVC Members)	XRCVC-Viviana Extension	20-Nov-16	17
7	Thane (Ambernath NAB-IDBI)	XRCVC-Viviana Extension	16-Dec-16	14
8	Thane (Marathi Mandir High School)	XRCVC-Viviana Extension	28-Jan-17	23
9	Ambernath (NAB-IDBI)	A - 52/53, Additional Ambernath MIDC, Anand Nagar, Ambernath - 421 506	15-Feb-17	40
10	Thane (TCS Corporate Maitree) ACTC	XRCVC-Viviana Extension	18-Mar-17	15
11	Mumbai (Snehankit Helpline for SNTD Women's University)	XRCVC Department, St. Xavier's College	25-Apr-17	10
12	NAB India Para Professional and Functional training batch	St. Xavier's College	May 24-17	27
		Total		240

Financial Access

The ability to independently manage, operate and execute one's financial transactions is key to independent living. Lack of effective guidelines and lack of optimum use of technology in financial instruments had traditionally denied financial access to the blind and low vision persons. The XRCVC has been striving to change this reality. Some of the activities under the Financial Access initiative are appended below.



(Left) A sensitisation workshop at BNY Mellon, Pune; (right) first anniversary celebrations at XRCVC-Viviana Extension

- In June 2016, Dr Sam Taraporevala, Neha Trivedi and Ketan Kothari met the banking ombudsman, Mr R L Sharma in Delhi to discuss how banking could be made more accessible. This was followed by a meeting with Dr Alok Pande, Director, DFS, Ministry of Finance.
- Officials from the Bombay Stock Exchange (BSE) Institute visited XRCVC in December 2016 to explore a partnership for making their courses accessible.
- In January 2017, Dr Sam Taraporevala, Aniket Gupta, and Ketan Kothari travelled to Bangalore to attend the inauguration of State Bank of India's 'Centre of Excellence for PwDs'. They had a fruitful discussion with the chairman of SBI, Arundhati Bhattacharya. Dr Sam was invited to be on the Advisory Panel of the Centre of Excellence.
- Dr Sam Taraporevala, Jatin Shah and Prashant Naik met an IT/ Accessibility specialist for App development) to provide inputs for an ATM locator app.
- In the same month, Calveena D'Sylva helped NCR with checking of Braille labels for their ATMs as requested by Mr Ashok Shankar (Solutions Manager - Financial of NCR)
- In April, XRCVC provided help to ATM manufacturer Perto (Mr Roberto Baur and Mr Vijay Salunkhe) with regards Braille labels.
- Assistance was provided to the Ethiopian National Association for the Blind in their endeavour to develop Accessible ATMs.



Education Access

While Right to Education has become a fundamental right in India, this right is far from being actualized for persons with disabilities. During the year, the XRCVC continued its work towards inclusive education practices and services at school, college and higher education levels. A plethora of activities were conducted during the year in this connection, which are appended below.



(Left) A training session at St Xavier's College; (right) a meeting with principals and senior education officials at Akola

- During the year, the XRCVC continued its ongoing work with officials from Rashtriya Uchchatar Shiksha Abhiyan (RUSA) to take forward the mandate of RUSA in ensuring quality in higher education and achieving excellence. Equity through inclusion in higher education is one of the key components under RUSA. In July, RUSA Joint Director Sharad Patil and Ishrat Jahan visited XRCVC to discuss the way ahead for universities. XRCVC also helped RUSA prepare a draft government resolution to build equity for persons with disability. In September, XRCVC conducted a session on building inclusive education through support services at the higher education level as part of a 'Consultation Meet on Academic Autonomy for Eligible Colleges', organised by RUSA in collaboration with St Xavier's College. XRCVC also provided a demonstration of access technology to the delegates made up of principals and senior officials of various colleges / universities in Maharashtra. Prof Hemant P Sapkal, Assistant professor, Department of Zoology, Shri Shivaji College of Arts, Commerce and Science, Akola, which has got funding from RUSA, visited XRCVC in October to familiarise himself with the activities of the centre. In November, Prof A M Mahajan (Registrar, North Maharashtra University, Jalgaon) and his colleague Mr Hussain visited XRCVC alongwith Ishrat Jahan of RUSA. NMU, Jalgaon has received a grant under the pilot project to



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YOU & EYE – A WEEKLY HUMOUR SERIES THAT DEMYSTIFIES BLINDNESS, CURATED BY XRCVC.ORG



BLIND PERSONS ARE LIKE THE REST OF US. NOT GENIUSES OR DUDS, BUT PERSONS TRYING TO FIND A SWEET SPOT IN A WORLD WHERE RULES ARE MADE BY THE SIGHTED. IN A NEW WEEKLY COMIC SERIES CONCEIVED BY THE XAVIER'S RESOURCE CENTRE FOR THE VISUALLY CHALLENGED (XRCVC) AND CREATED BY THIS CARTOONIST, VISION IMPAIRMENT GETS DEMYSTIFIED WITH A GARNISH OF WIT. NO OFFENCE IS MEANT, AND, HOPEFULLY, NONE WILL BE TAKEN. -PONNAPPA-

The first-ever 'You & Eye' cartoon strip which was published in Sunday Mid-day on May 1, 2016 to create awareness about the lives of persons with visual impairment

establish an Inclusive Education Centre at the University. They wanted to understand the basic requirements for the centre. In January 2017, Prof Ambadas Mohite and Ishrat Jahan from RUSA visited XRCVC. Prof Mohite is looking after RUSA activities in Amravati district. XRCVC coordinated with Ishrat Jahan from RUSA for training to three Maharashtra colleges in March 2017 as part of RUSA's Equity Project including Shri Shivaji College of Arts, Commerce and Science, Akola; North Maharashtra University, Jalgaon; and Shivaji University, Kolhapur. Besides, an E group was set up for RUSA Pilot on Inclusion. In connection with this initiative, conference calls were conducted and follow up support was provided as well. In addition, on April 27, review meeting calls with each university separately were held along with Ishrat Jahan to plan for the new year.

- During the year, XRCVC created and shared the structure of an Inclusion Cell to be set up at St Xavier's College to the Principal. The same was also shared by XRCVC with RUSA



as a model to be shared with other colleges. Subsequently, Dr Sam Taraporevala and Neha Trivedi attended the first meeting of the Inclusion Cell in February 2017. The cell has been set up under RUSA's Equity Project and will look at various efforts to make the college inclusive. One of the first issues taken up at the cell was inclusive examination systems and compiling the data on students with disability on campus. A presentation on the concept of inclusion was made to around 90 faculty members by Neha Trivedi and Dr Sam Taraporevala on March 10. In April, the centre, as an active part of the inclusion cell, continued ongoing work on the processes to be followed by the cell. Another presentation was made at the senior college staff meeting on April 29. XRCVC also continued ongoing work with the Examinations Department of St Xavier's College to help some visually impaired students answer their examination papers using laptops.



(Left) Maharashtra's education minister Vinod Tawde visits XRCVC; (right) a science excitation workshop at St Xavier's

- The XRCVC through the year continued its ongoing pioneering work in the area of mathematics and science education. Students were provided direct support services. The XRCVC created accessible electronic textbooks, Teaching-Learning Aids (TLAs), and provided conceptual training to these students. In addition, the XRCVC has started creating a TLA resource library for mathematics and science education, starting Std 1 onwards.
- The XRCVC's team on inclusive education comprising Neha Trivedi, Calveena D'Sylva, Rebecca Carvalho, Mimansa Vahia, Aurealia D'Mello and Shizanne D'Mello continued work on the Concept Teaching Manuals (CTMs), which have been designed for use by teachers working with blind or low vision students. Special educators or parents working on a one-on-one basis, as well as classroom teachers and tuition teachers in an inclusive classroom can incorporate the information and ideas from these manuals. These CTMs cover interactive ways to teach concepts to blind or low vision students including the use of Teaching-Learning Aids (TLAs) in the form of activities, real objects, 3D educational toys and models, 2D tactile diagrams, etc.



- Ongoing work continued with students who are part of the XRCVC's comprehensive educational offering. XRCVC also regularly conducted training and sensitisation sessions at Prime Academy, and other institutions like Beacon High School, St John's Universal ICSE School, and Besant Montessori School.
- Calveena D'Sylva participated in a consultation organised by Sightsavers in Delhi in November on the topic 'School Readiness Framework for CVI in IE'. It was an orientation programme on inclusive teaching practices for teaching CVIs in inclusive education.
- XRCVC conducted its capacity-building workshop— 'I For Inclusion' for various stakeholders during the year including the teachers of the Prime Academy (ICSE) school, Marol (in June 2016), the St. Xavier's Institute of Education (in December 2016), and the North Maharashtra University, Jalgaon (in March 2017).
- Dr Sam Taraporevala, Neha Trivedi and Ketan Kothari participated in a full-day consultation conducted in Delhi at the invitation of Sightsavers on the theme, 'ICT for school going visually impaired children in an inclusive setup'.
- Mimansa Vahia commenced a 45-week long intensive training schedule in July for visually impaired persons titled, 'Mathematics for Management Exams Training'. In August, she also conducted a Science Excitation workshop at Victoria Memorial School for the Blind.
- In September 2016, Dr Sam Taraporevala visited the Tata Institute of Social Sciences (TISS) as an invitee to the Doctoral Advisory Committee meeting for the PhD thesis of Ruchi Palan. The thesis focuses on Disabled Students in Higher Education: A Study of Experiences and Aspirations.
- In October, the centre's Special Educators worked closely Mr Purandare of Galord Arts during the month to produce a Geometry kit for VI students for the upcoming trainings. This included an accessible scale and protractor.
- During the year, XRCVC arranged over 100 scribes from nearby schools for the exams of students with special needs at St Xavier's College.
- An orientation visit was organised for 55 second-year BEd students of K J Somaiya College.
- In January 2017 Kabir Nagral, a Grade 10 student at Phillips Academy in Andover, Massachusetts (USA) came to meet Dr Sam Taraporevala and Neha Trivedi. He was recently awarded a fellowship by his school to research learning initiatives for visually impaired students in India and the US. The eventual goal of his research is to identify, adapt and deliver effective and affordable maths and computer learning solutions which will provide job skills for the visually impaired. He was accompanied by his father Ajit Nagral, who heads a company called Sciformix. They were provided specific CTMs and TD research queries to start their work



- The UGC team to review autonomy for the college visited the centre as part of its evaluation. The centre's work came in for high commendation in their report.
- A team from Mumbai University's Local Inspection Committee visited XRCVC in January to learn about the work done at the centre. They were in college to review the affiliation for unaided courses.
- Uma Rao from Mathruchaya Bangalore visited XRCVC in January to share and exchange ideas on how they are creating books and tactile diagrams. She explained and demonstrated to Rebecca how Quick Tac and Swift can be used. In turn, Rebecca Carvalho took her through some parts of the research XRCVC has done with creating Thermoform diagrams.
- XRCVC organised a programme for the Marathi Vidnyan Parishad in January on the occasion of National Science Day. A Reading Without Seeing workshop and awareness workshop were conducted on the occasion.
- During the month, XRCVC sent Assistech its first two kits for tactile diagram production.
- Work also commenced on creating teachingtools.in, the online CTM library. The first Wikipage has been set up in this connection
- Work pertaining to book content creation and accessible study material creation continued through the year. Both staff and volunteers are engaged in this work
- Neha Trivedi set up a support group of Higher Education STEM visually impaired and low vision students to start a collaborative process of work.
- Dr Sam Taraporevala was the keynote speaker for a seminar on Science and Technology for Persons with Disabilities at IGNOU. He spoke on the theme of "Science and the Blind, A double-edged sword: The Socio-Technical Challenge".
- Co-ordinated for and held a meeting in March 2017 with Dr Salil Jandyal, Hon. Secretary Mrs Goenka and Mrs Deshpande of Victoria Memorial School to discuss the kind of support XRCVC could provide in the academic year 2017-18.
- Rebecca Carvalho met with 22 teachers from NAB Education Department for their Andheri centre, and oriented the teachers to some aspects of the work being done under the XRCVC Maths-Science Project and also provided a detailed brief about the Maths Science Efficiency workshop.
- XRCVC Maths Science Egroup discussions among members continued through the year. The egroup currently has 63 members.
- Meetings were held in April 2017 with Gregor Strutz and Snehal (an NID student) on the possibility of collaborations to develop a Geometry kit. Key design challenges while designing the ideal Geometry tools for India were also discussed with them.



- In May 2017, Neha Trivedi and Calveena D'Sylva visited St. John's Universal School, Goregaon West, to discuss with the management the various examination and other options for the two VI students in the school. They also met officials of Chatrabhuj Narsee School, Kandivali East, with regards the possibility of admission for a student whose parents had sought help from XRCVC.
- In May 2017, 18 members of the Lions Club of East Bombay visited XRCVC to hand over the Lion's trophy to Shekhar Manjulkar.

Independent Living

Each of us, as we pass through our day, interact with a range of products, environments and services from transport services, to kitchen appliances, and entertainment products. How accessible are these daily living services and products for the visually challenged? The XRCVC's Independent Living initiative questions and works towards rectifying these areas. Some of the activities covered under this initiative during the year are appended below.

- Conducted continuing discussions with Assistech, IIT Delhi and Mumbai First about OnBoard, the accessible announcement system that will help Visually Impaired persons board buses.
- Worked on pilot testing of location identification signages called Beacons. The plan is to have a Mobile Application in place for indoor navigation and identification for blind users. Also coordinated with a firm called NWBT on installing Beacons at Mumbai airport, and worked with a few engineering students on their Beacon navigation project and indoor navigation device.
- Worked with LEAF Design Pvt Ltd on accessibility initiatives with design students.
- Continued ongoing research and development work on visual / auditory / tactile teaching-learning aids and other independent living aids. Worked on integrating diverse technologies which could create a composite system to read through fingers, see through eyes, or hear through ears. The research also has immense potential for the teaching-learning process as it can promote paired reading and can assist a non-Braille literate person to also function effectively.
- An Art of Living course was conducted in August 2016 for XRCVC members by Prof Sarada of St Xavier's College.
- Point of View conducted a five-day Digital Storytelling workshop for XRCVC members. Digital Story Telling is a creative form of expression, which enables the participants to delve within and talk about one story/ experience / moment that stands out most for them. At the end of five days they were mentored on giving



voice to their thought and feeling, scripting their story, and given technical training for producing their digital story.

- XRCVC's suggestions given to the Ministry of Urban Development, Delhi were incorporated in the 'Harmonised Guidelines And Space Standards For Barrier Free Built Environment For Persons With Disability and Elderly Persons – February 2016'
- XRCVC also gave its inputs to Enable India for their Viable summit
- In February 2017, continued ongoing work with Fr Agnel Institute of Engineering and with Mr Sandeep Anand of NBW Tech for Beacon testing.
- Dr Sam Taraporevala and Neha Trivedi met Faizan Zahid from IDC to exchange ideas on accessible bus transport.
- A few engineering students from Swami Vivekananda college visited the centre to discuss their project on independent navigation aid for the blind.
- Ketan Kothari from Sightsavers and Shizanne D'Mello translated E5 E-book prompts from English to Marathi.

Awareness

Creating awareness about the lives and capabilities of visually impaired persons is one of the key areas that will open doors for them in a world where the rules are made for and by sighted people. The XRCVC has been working on a number of such initiatives through its awareness and sensitization workshop Antarchakshu® —The Eye Within.

In May 2016, the XRCVC had launched a comic strip series titled 'You & Eye' as a sensitisation and awareness initiative. Probably India's first comic strip on the lives of visually impaired persons, 'You & Eye' is a collaborative effort between the XRCVC, Jagran Group publication Mid-day, and Pune-based cartoonist, Nala Ponnappa. The comic strip is being published every week in the Sunday edition of Mid-day to a very good response from readers.



(Left) An awareness workshop at Tata Sons; (right) Dr Sam Taraporevala addressing advertising students at ISDI in Mumbai

In addition, XRCVC conducted its mega sensitisation and awareness event Antarchakshu[®] in IIT-Bombay on September 18, 19, 20 (A detailed report on the event is available separately.)

During the year Antarchakshu[®] was conducted at many places and for a variety of target groups covering 2566 participants. (see Table 3).

Table 3: General Awareness workshops and events

No	Date	Participant profile	Venue	No of Participants
1	03-Aug	Architecture Students	IES School of Architecture	35
2	09-Aug	IT professionals	Accenture (Inclusion and Diversity Expo)	80
3	12-Aug	Design students	IIT Bombay	20
4	15-Aug	IT professionals	BNY Mellon, Pune	66
5	15-Aug	IT professionals	BNY Mellon, Pune	36
6	15-Aug	IT professionals	BNY Mellon, Pune	37
7	16-Aug	IT professionals	BNY Mellon, Chennai	50



8	16-Aug	IT professionals	BNY Mellon, Chennai	66
9	01-Sep	Students	FYBMM students, St Xavier's College	40
10	13-Sep	Students	Volunteer training for Antarchakshu	122
11	Sept 18, 19, 20		Antarchakshu at IITB	1734
12	01-Oct	PhD Students	IITB-Monash Research Academy	27
13	03-Oct	Corporate staff	Citibank	16
14	05-Oct	Corporate staff I	Sanofi Pharmaceuticals	27
15	05-Oct	Corporate staff II	Sanofi Pharmaceuticals	33
16	20-Oct	Media students	XIC	20
17	02-Dec	Tata	Bombay House	32
18	16-Dec	Corporate Staff	Deloitte office, Delhi	26
19	16-Dec	Corporate Staff	Deloitte office, Delhi	19
20	26-Dec	IIT students	IIT Delhi's TRYST festival	12
21	26-Dec	IIT students	IIT Delhi's TRYST festival	20
22	20-Apr	Retailers	Viviana Mall Thane	48
TOTAL				2566

- In February 2017, XRCVC put up a stall on Accessible Maths and Science at Paradigm (the annual science exhibition held at St. Xavier's College). There were approximately 40 visitors.
- During the same month, Dr Sam Taraporevala delivered a lecture to approximately 90 advertising students on 'Sight' at ISDI, Lower Parel. The lecture was organised by the Indian Advertisers' Association under their five-part lecture series 'Sense'.
- XRCVC participated in an exhibition for the National Science Day at the Homi Bhabha Centre for Science Education (HBCSE), and put up a stall on inclusive Science education, with focus on accessible tactile diagrams and demonstration on performing accessible light experiments.



- In May 2017, Dr Sam Taraporevala and Aniket Gupta visited Hyderabad to attend the first Accessibility summit organized by Microsoft in collaboration with Sarthak Education Trust. Dr Taraporevala gave a talk on First Perspective: 'What we need. What we don't need'.

Networking

- Dr Sam Taraporevala and Neha Trivedi met Mr Mukesh Jain and Mr Sanjay Singh, MSJE at Department of Empowerment of Persons with Disabilities in Delhi to discuss accessibility initiatives.
- Dr Vinay Saini from IIT Bombay (Nanobios Lab, Dept of Biosciences & Bioengineering), visited XRCVC in October 2016 to familiarise himself with the activities of the centre. He also introduced Dr Sam Taraporevala via email to Prof Amir Amedi and Tomer Behor from BrainVisionRehab.com, who are working on an assistive device called the Eyecane.
- Satish Kanamadi from TISS and two of his colleagues visited XRCVC to gain insights into how they could improve their Assistive Technologies Centre, the MK Tata Centre for the Visually Challenged.
- Additionally, Dr Sam Taraporevala and Aniket Gupta visited Delhi in December 2016, where they attended a meeting at MSJE to discuss assistive devices for the blind, held discussions at Saksham with Dipendra Manocha and others on accessible mobile phones, and attended the unveiling of the accessible metro map in Delhi's Patel Chowk station. The map has been developed by Assistech - IIT Delhi.
- In January, Aradhana Lal from Lemon Tree Hotels visited XRCVC to discuss career opportunities for disabled persons at Lemon Tree.
- In February, Shahin Shaikh, Secretary, NAB Modal Research and Rehabilitation Centre, Nashik visited the centre to understand the work at XRCVC.
- Jinisha Chedda (Director - Kandivali Sol's Arc) visited the centre on February 10
- Sushil Gangawane from Navi Mumbai Municipal Corporation visited the centre on in February seeking assistance to set up a resource centre in Vashi.
- Mark Mascarenhas, Ophthalmologist from Swaraashi Netralaya, visited XRCVC to enquire whether he could refer his patients to the centre.

Conclusion

We would like to extend our gratitude to our funders, partners, and sponsors who have played a major role in making us what we are today. We would like to specially thank Great Eastern CSR Foundation, Tata Capital Housing Finance Limited, Sightsavers, Dhun Pestonji Parakh



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A big thank you to our large pool of volunteers as well. Their commitment ensures that a small organisation like the XRCVC is able to make a significant contribution and touch the lives of countless people all over the country.

In conclusion, our deep appreciation goes out to St. Xavier's College—the management, staff members and students, for demonstrating to educational institutes all over the country how a centre of learning can be truly inclusive to persons with disabilities, particularly blind and low-vision persons. Special thanks to Dr Agnelo Menezes, the principal, whose ongoing support and guidance has helped the XRCVC continue as a centre of excellence of national repute.