Summer 2017

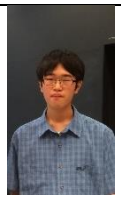
Global Scientists and Engineers Course
Short-term Study Abroad Program

India Report

Contents of the report

Chapter 1 Overview of the program (Zhao Hengwei)

1-1 Participants

Name	***Photo***	***Name***	***Photo***
Keijiro Nunokawa School of Science, Earth and planetary Sciences 4th year		**Hengwei Zhao** School of Engineering, International Development Engineering 3rd year	 Leader
Ayu Numata School of Engineering, International Development Engineering 3rd year		**Moran Lee** School of Engineering, International Development Engineering 3rd year	
Yuji Kirihara School of Engineering, Mechanical Engineering 2nd year		**Eriko Deguchi** School of Life Science and Technology, Life Science and Technology 2nd year	 Editor
Keigo Nakamura School of Engineering, Mechanical Engineering 2nd year		**Mei Fukuda** School of Computing, Mathematical and Computing Science 2nd year	 Sub leader
Nao Kitada Group 2 1st year		**Luna Takei** Group 4 1st year	
Mitsuhiro Matsumoto Group 7 1st year		**Teaching Staff** **Anil C. Wijeyewickrema**	**Non Teaching Staff** **Miwako Taya**

1-2 Purpose of the program

There are 4 main purposes of the program as follows.

① Experience the Indian culture of their thinking, religions, customs and food.

② Extend our way of thinking based on our gained knowledge from local to international, from shallow to deep, from one aspect to many aspects.

③ Improve our English skills by communicating with local students.

④ Find out and experience the main social problems in India, and try our best to think about some solutions by using our field of expertise.

1-3 Schedule

Date	Time	Activities	Accommodation
28-Aug (mon)		From Haneda to Bangkok, From Bangkok to Chennai	Chennai
29-Aug (tue)	10:00- 10:45	Indian Institute of Technology, Madras Visit Office of International Relations Meeting with the Dean and staff	Chennai
	11:00-12:30	Meeting with Prof K.Ramamurthy, Head of the Civil Engineering Department Followed by a lab visit	
	13:00- 14:00	Lunch at Taramani Guest House	
	14:30- 15:30	Visit to the Research Park	
	15:30- 16:00	Center for innovation	
	16:00-	Campus tour	
30-Aug (wed)	8:00-17:00	Attend classes of IITM	Chennai
	17:15-	Student Exchange - Presentation by Tokyo Tech students to IITM students 1)Outline of Tokyo Tech 2)Tokyo Tech students' self-introduction	
	eve	Go for dinner with IITM students	

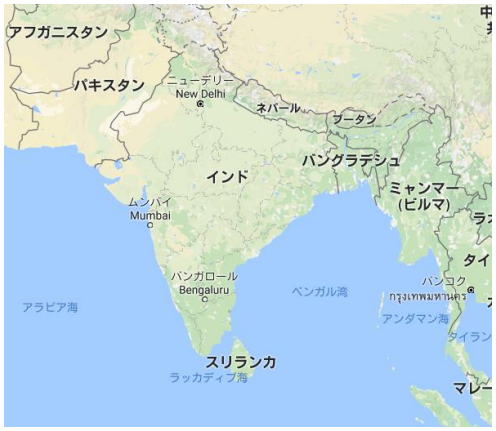
31-Aug (thur)	9:00-9:50	Visit to the Aerospace Engineering Labs	Chennai
	10:00- 10:50	Visit to the Biotechnology Labs	
	11:00-12:00	Visit to the Mechanical Engineering Labs	
	12:30-	Central Workshop	
	13:00-	Lunch at Taramani Guest House	
	pm	Visit museums and downtown of Chennai	
1-Sep (fri)	14:00- 19:00	Visit L&T construction	Chennai
2-Sep (sat)		Visit Mahabalipuram (World Heritage)	Chennai
3-Sep (sun)	6:00-10:50	From Chennai to Bangalore by train	Bangalore
	pm	Visit museums and downtown of Bangalore	
4-Sep (mon)	14:00- 16:30	Visit NEC Technologies India Pvt.Ltd	Bangalore
5-Sep (tue)	9:00-11:00	Visit AUTODESK	Bangalore
	14:00- 16:30	Visit TOYOTA Kiroloskar Motor Pvt Ltd	
	20:00-	Leave for Bangalore International Airport	
6-Sep (wed)		From Bangalore to Bangkok, From Bangkok to Haneda	Airplane

Chapter 2 India

2-1 Overview of India (Zhao Hengwei)

Currently, India has 1.3 billion people, and is the second-most populous country in the world just next to the China. The size of India is 3.2 million ㎢ which is 9 times of Japan. India has two official languages, Hindi and English. Thus most of Indian people can speak English, which makes it easier for tourists to have a trip in India without communication problem.

<Figure 1: Flag of India>



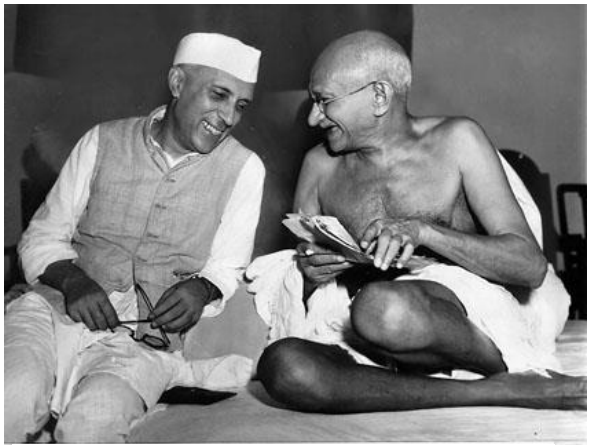
<Figure 2: India on the atlas>

Rupee is official Indian currency, and 1 rupee approximately equals to 1.7 Japanese yen as of September 2017. The time difference between Japan and India is 3.5 hours. It means Japan is 3.5 hours earlier than India.

<Figure 3: Sign of the rupee>

2-2 History of India (Zhao Hengwei)

India has very ancient history witch can date back around B.C.3000. During the time of modern India, India had been colonized by Britain since 1877. During the colonization period, Mahatma Gandhi (right) led the independence movement. Then after the WW2, India was independent from Britain in 1948, and Jawaharlal Nehru became India's first prime minister. Yet the India was divided into 2 parts by Britain according to their religion, India (Hindi) and Pakistan (Islam). Further, they have conflicted with each other up till now since their independence.



<Figure 4: Mahatma Gandhi (right)>

2-3 Company, customs, and impression (Mitsuhiro Matsumoto)

What I was noticed by the four companies which we visited during this program is that India will develop remarkably in the future. Today, India has the second highest population. As such, there are many young people in India. Such features make labor costs cheaper and companies from all over the world transfer factories to India. As a result, I thought Indian people who are currently unemployed will soon have a good life and GDP will rise accordingly.

I want to mention two customs which I noticed in India. First, Indian people use bare hand during meal. They consider left hand as an unclean thing. So, in principle, they use right hand. Meanwhile, there are few exceptions. For example, when they eat a Nan, they use both hands to tear it off. Second, Indian people don't like to receive the small change. I have some experiences. When I paid 100 rupees to buy 63 rupees thing. I was asked to pay more 3 rupees by cashier. When I exchanged 10000 yen to Indian rupee on the first day, I got four 2000 rupees bills. I was confused on how to use my money.


<Figure 5: The traffic of Indian road>

My most impressive memory about India is traffic. After we arrived at the airport in India, we got a taxi to go to guest house in IITM. As soon as we started moving, we experienced a thing which cannot be happened in Japan. There is a traffic lane, but there is no car that follows the traffic lane. It is natural to run at over 80 km/h on general road. Indian people seem to be enjoying to pass through other cars like a car race. And they blow the car horn frequently like a greeting. I think that once you ride a car in India, you will never forget the experience.

Chapter 3 Cities

3-1 Chennai (Luna Takei)

Chennai is one of the four biggest cities in India, and is called Detroit of Asia. The city had been called Madras and was renamed Chennai in 1996. The entire population of Chennai was about 4,670,000 in 2015.

Since Chennai lies right on the equator and is classified as savanna climate, it is very hot and humid throughout the year. Cyclone often occurs in Bay of Bengal and damages many houses in Chennai.

This city is a center of economy in south India. Diplomatic establishments abroad, branch offices of trading companies, and banks are located in Chennai.

<Figure 6: Location of Chennai>

The state of Tamil Nadu, which has Chennai as the state capital, has a strong bond with Dravidian culture, not with Aryan culture like northern India so that the state was not influenced by Muslim culture. Many people can feel a different atmosphere from other states. For instance, shop signs are written in Tamil and the words which local people talk are smooth.

This city is famous for movies. In Kodambakkam, which is located in western of Chennai. There are many movie studios and processing laboratory. A lot of movies in Tamil which is called Kollywood are made there.

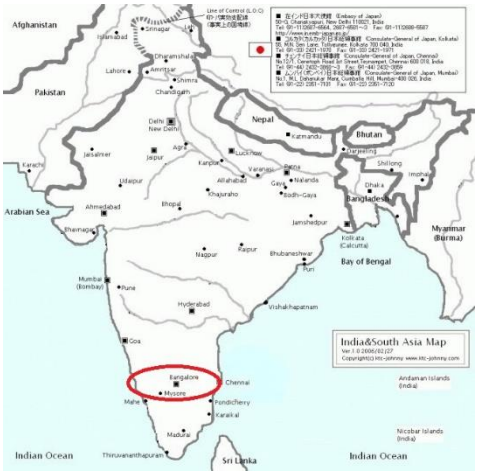
There are a lot of sightseeing sites in Chennai. Marina beach is one of the most famous spots in Chennai.

Marina beach is the second longest beach in the world. Marina beach is a place for resting and relaxation for local people. The beach is crowded with people and there are many stalls every evening.

<Figure 7: Marina Beach>

3-2 Bangalore (Eriko Deguchi)

Bangalore is the capital of the Indian state of Karnataka. It is the third most populous city in India with its population of about 8.42 million (2011). Bangalore is located in southern India on the Deccan Plateau and its average elevation is 920m.



＜Figure 8: Location of Bangalore>

Bangalore has a tropical savanna climate with distinct 2 seasons. The wet season starts from April and the dry season starts from December. Due to its high elevation of over 900m, the weather and the temperature is relatively moderate throughout the year. In winter, the temperature seldom go down under 12℃. On the other hand, the temperature doesn't go higher than 35℃. During our stay, the weather was not so humid and hot. Instead, it was sunny during our whole stay, so it was much easier to walk around the city than when we were in Chennai.

This city is famous for its information technology industries and it is sometimes called "the Silicon Valley of India." This is because Bangalore has the large number of information technology companies which contributed 33% of India's ₹1,442 billion (US$22 billion) IT exports in 2006–07. During this program, we visited some of those information technology companies, such as NEC and AUTODESK.

The traffic condition in Bangalore was not so heavy compared to that of Chennai. There were traffic lights on the road. Moreover, there was a sidewalk along the road, so it was easy to walk along the road. I'm sure that these are only a part of Bangalore which might have roads with no traffic lights or sidewalks, but I thought Bangalore was a relatively comfortable city in India.

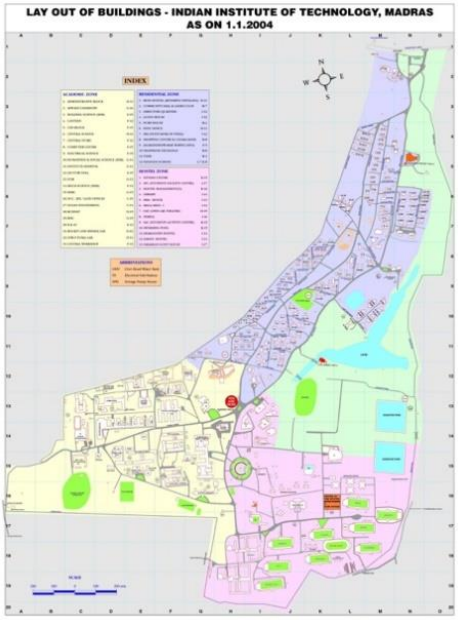
<Figure 9: Road with sidewalk>

Chapter 4 Indian Institute of Technology Madras (IITM)

4-1 Overview of IITM

4-1-1 Campus (Keijiro Nunokawa)

IIT Madras is located in Chennai, the city of south India. The biggest feature of IITM campus is its “huge” size. The area of IIT Madras campus is ten times larger than of Tokyo Tech. This huge IIT Madras campus is divided into three zones. One is academic zone, where students take the class lecture. Another is residential zone, where IIT Madras students and their family live. The other is hostel zone, where visitors such as us stay. IIT Madras students move everyday between their residence in residential zone and lecture building in academic zone. IIT Madras is so large that students move by bike or by bus. In IIT Madras We can use the bus for free. Traffic is heavy. So, we have to be careful when crossing the street.



<Figure 10: Map of IIT Madras>

IIT Madras campus is very rich in nature. Walking in IIT Madras, we can see many animals, monkeys, deer, dogs and birds. They all live in IIT Madras. IIT Madras campus is also the home for animals. You may playfully call Tokyo Tech campus Ookayama national park, but in IIT Madras campus you will see genuine national park. Actually, IIT Madras campus was a part of Guindy National Park before.


<Figure 11: Deer in IIT Madras>


<Figure 12: Monkeys in IIT Madras>

4-1-2 Taramani guest house (Moran Lee)

Taramani guest house is a school hotel of IITM which has 83 rooms, where we have stayed for six days during our program. This is a hotel provides boarding and lodging facilities for the Institute guests and Visitors, newly appointed faculty, and staff members.

<Figure 13: Statue of TGH>

We received our room keys in lobby which has statue of Ganesha, a famous god of Hindi. In fact, you can feel a strong religious atmosphere here if you see the statue in the laboratory of IITM. And a student told me that 70% of IITM students believe in some religion.

The room is very clean and the bed is very soft and easy to live. But there are always some strange insects walking around room's outside. There are a non-liquid crystal TV and an old air conditioner which needs some special skill to use. Sometimes you thought this room was just behind the times especially when you watched the 10 years ago TV show in Indian TV. But considering the cheap price, 600 rupees one night, it's not so bad.

<Figure 14: Breakfast of TGH>

And you can also enjoy Indian breakfast with just 20 rupees. It's delicious for me, although someone said it's a little bit too spicy. But the menu is always same every day, so maybe it's easy to get tired of taste. But if you want to taste some daily foods of India, it will be a good place to try.

4-2 IITM class

4-2-1 Class (Keijiro Nunokawa)

In IIT Madras the class starts at 8:00 in the morning and finishes at about 5:00 in the evening. The class is 50 minutes long, and break time between classes is 10 minutes. IIT Madras has 16 departments including mechanical engineering, computer science, bio technology, and so forth. We could choose the class we wanted to attend. On the day when I was going to attend the classes, I got to the classroom before 8 a.m. to attend the 1st period class. But no students and no teachers came to the classroom at 8 o'clock. I had no idea why no students except me were in the classroom. I asked IIT Madras office staff why. But

she only taught me where the classroom is, and didn't teach me why no students were in the classroom. I couldn't take this class. Later it found out that some Tokyo Tech students had the similar experience.

<Figure 15: Classroom>

After 2nd period I could attend the class. In the class, I found some difference between Japan and India. Teacher speak as if talk to students. Students raised their hands and asked questions. Few students use their smartphones and few students sleep. I've got the impression that IIT Madras class is more interactive than Tokyo Tech.

4-2-2 Research park (Keijiro Nunokawa)

IIT Madras Research Park is established to create an innovation ecosystem through collaboration between the industry and academia. IIT Madras Research Park tries to enable companies with a research focus to set up a base in the park and leverage the expertise of IIT Madras. IIT Madras Research Park is modeled along the lines of successful research park in the world, such as Stanford, MIT, and Harvard. As far as I searched, Tokyo Tech doesn't have a research park like this.

<Figure 16: IIT Madras Research Park>

4-2-3 Laboratory visiting (Moran Lee)

In this travel of IITM, we also visited labs of Civil Engineering, Aerospace Engineering, Biotechnology, and Mechanical Engineering.

We visited three kinds of Civil Engineering Labs, concrete research, urban traffic system research and grand building research. Urban traffic system research is to use programming way to monitor the traffic situation in urban and report those data to government. It's a very necessary thing for today's India judging by what we've seen in this travel. The traffic problem is very serious. The staff told us that the biggest traffic problem in India is that no one follows the rule, which is so true. Thus, building a serious penalty system is an urgent thing.

In Biotechnology Lab, we saw laboratory apparatus that is used in third year students' experiment. A biotechnology student of Tokyo Tech said that they also use the same apparatus in their experiment. So, I think maybe we have same level of education in biotechnology.

<Figure 17: Apparatus of Biotechnology>

The workshop of Mechanical Engineering is very huge. It's almost ten times as large as our workshop in ishikawadai. There are so many machines in workshop that I think everyone can control a machine in lecture. There is also an innovation center near Mechanical Engineering Lab just like Tokyo Tech's innovation center(ものづくりセンター). Since the innovation center is very close to the workshop of Mechanical Engineering, students can discuss ideas and make the ideas into reality by using machines of those workshop.

Compare to the lab of Tokyo Tech, the lab of IITM is very huge and has more apparatus than of Tokyo Tech. And in this lab visit, all staff members are very friendly and patient to introduce their research to us. We all are very thankful for their introduction.

<Figure18 workshop of Mechanical Engineering>

4-3 Students Exchange (Moran Lee)

We had a student-exchange session in the third day of our travel. In this meeting, we communicated with IITM's students. They are all friendly and know a lot of Japanese animation and movie culture. But some of them only know "one piece "and "Naruto". One of them knows much of Japanese otaku culture, especially something about Yaoi fandom. I had talked about the caste system of education with them. They told me that the situation is changed. OBC (other backward class) which means lower class now has privilege in entering test of university. But in fact, we saw some OBC people in Toyota school that they are still in poverty. So, I think that caste system needs some time to solve.

<Figure 19: Members with IITM student having dinner>

Chapter 5 Company visit

5-1 L＆T (Yuji Kirihara)

L&T has started with only two staffs, whose names were Henning Holck-Larsen and Soren Kristian Toubro (the name of “L&T” come from these two founder). Though this start, L&T is one of the largest companies in India now. It has construction, power, financial services, and many kinds of branch.

We visited L&T on 1 September, and went L&T’s museum at the beginning. The museum holds many trophies for L&T’s accomplishment. There are also many pictures of construction L&T has built such as factories, hospitals, nuclear power plants and so on.

Ms. Shamala, who guided us in museum, told us an episode which shows us how strong L&T’s can build structure. In the movie “*The Bridge on The River Kwai (in Japanese “senjyou ni kakeru hasi”)”*, a bridge plays an important role. L&T constructed it in Sri Lanka. This bridge must have been blasted for the movie, but it was too strong to be blasted. It was not broken down. After that L&T needed to construct more fragile one.

Museum show us not only what L&T did but also what L&T will do. “Statue of Unity”, this is name of statue L&T is going to build. The height of statue is 182m, twice of “Statue of Liberty”. Materials are steel framing, reinforced concrete and cupper coating. L&T is going to complete construction of this statue by 2019. This statue will be the highest statue in the world. The statue isn’t just huge statue. It has museum in its chest.

<Figure 20: Photos of building L&T constructed>

<Figure 21: Awards and trophies L&T won>

<Figure 22: Small model of “Statue of Unity”>

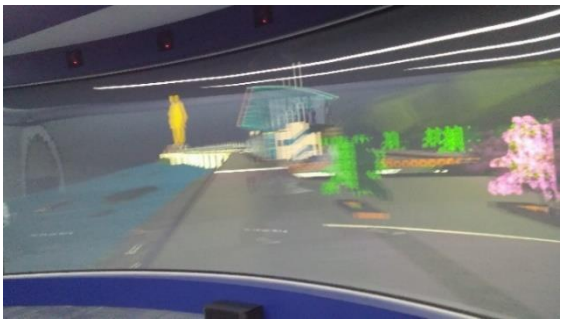
After the museum, we visit technology development centre. We experienced BIM (Building Information Modeling). BIM is the database which include shape, property of building elements, geographic information and so on. We can see these data as 3D models. Guide women invited us to the room. The room looks like a theater. L&T stuff handed out 3D grasses to us.

The screen projected image which is seem out of focus but we put on the grass and pushed a button, we could see the image as 3D models. One of these 3D models we watched was “Statue of Unity”. This statue builds on the small island so there is road which lead to the island. We could see the way, sidewalk, escalator and roofs and others.

The system shows us these models as if we were standing and were walking there. We ran to the island (but I can’t run so fast in fact), went upstairs and enter the statue. We could watch the hall and elevator in its foot.

This experience was great but I have seen similar experience with other system. However, they were just a part of things this system can show us. BIM has all information about building, such as structure, material and so on. So, we can watch not only outside of building but also inside. We enter the inside of statue, we couldn’t see just visiting statue, and watch the structure of statue, shape and size of iron frame the way of connecting, water pipes, electric wires and so on. This system is enable us to check and discuss about building visually. This is one of the systems I wish if Tokyo-tech had.

<Figure 23: Members with 3D glasses>



<Figure 24: 3D model of “Statue of Unity”>

After the BIM system experience, we visit Dr. B Sarma. He told us basic principles of L&T. One of that idea was “Green Building”. “Green building” is the way to reduce material, energy and others when constructions are build and are kept. He gave us an example, sand. Sand is used to make concrete, and was mainly gathered from river before. But now, collecting it from river is banned. The reason is excessive collecting lead degenerate of river condition. However, concrete is essential to build. So “ash” is considered able to be alternative material. We can gather “ash” wherever coal burn, for example thermal power plant. According to some website, this ash called “fry ash”. In addition, water is also valuable material. There is only 1.5% of water on the earth we can use. This fact was big surprise for me.

Dr. Sarma asked us if we go to the Moon or Mars, whether we can build construction or not. He said he cannot. Since we don’t know about types of soil, temperature and others. I think we must know materials we can use and nature if we want to leave something for next generation.

L&T has activity to contribute society, he said. This is “*Prayas”*, which employee and their family participate. Main activities are education for children in poverty and others.

He also talked about concrete materials. Why concrete need to be insert iron wire, what is weak point of concrete? His explanation was easy to understand though we don’t major civil engineering. From his talk, I felt L&T research many kinds of material. It was true. After the talk, he showed us into display room out of the room. There are many new materials L&T studies. Adhesive for concrete, new way of coating road, small structure to prevent from landslide (and it is environment- friendly). I felt maybe this attitude to think about coexistence life and nature from such a fundamental viewpoint, material, lead today’s development of L&T.

*Addition

The airport we used when we return, Kempegowda International Airport was built by L&T. It was very beautiful airport but we were too tired to tour around the airport…

<Figure 25: A big machine to test strength of material>

<Figure 26: A small bag to fix soil>

<Figure 27: Kempegowda International Airport>

5-2 NEC (Nao Kitada)

We visited NEC Technologies India Private Limited and asked them about Biometric identification systems. Biometric identification systems can identify people by fingerprints, faces, iris and so on. Fingerprint authentication is the most accurate way to identify people. There are 2 reasons.

<Figure 28: The board welcoming us>

First, there is very low probability that people have same fingerprints of somebody else. Despite the twins, their fingerprints are different. Second, people has 10 fingers. We have only 1 face and 2 eyes but 10 fingers. It is why fingerprints is more accurate than other biometrics.

In India, NEC's technology contributes to Aadhaar program. Aadhaar program is Indian ID program by using biometrics, which are fingerprints, face and iris. This program helps people to access public service such as train, passport, bank and so on. The number of people who register this program is over 1 billion. We tried face recognition system by using tablet. It was working fine.

What impressed me most in this visit was that everyone of NEC were full of life. They were proud of their work. I think this is the reason why India is developing.


<Figure 29: Trying face recognition system with Ms. Lakshmi>

5-3 AUTODESK (Mei Fukuda)

Autodesk, Inc. is an American software corporation and a world leader in making software for the 3D design, architecture, engineering, and construction, etc.

In the beginning, Mr. Anand Pillai, head of education gave a lecture about “The Future of Making Things”. In recent years, 3D printing has been spreading as the way to make things. The advantage of 3D printing is the freedom of design; 3D printer enables to make what customers really want. For 3D printing, CAD (computer-aided design) software is indispensable. Mr. Pillai also introduced about products of Autodesk. One of relatively new products, Fusion 360™ is 3D CAD, CAM, and CAE tool connects the entire product development process in a single cloud-based platform. Using cloud-based platform, it works anywhere and users can collaborate with anyone.

After that, Mr. Anand Pujari, program manager gave us a presentation of Autodesk Forge, platform API (application programming interface). We understood that many companies developed the application and services with Forge.

The student who designs some products also gave us a presentation. Mr. Sharath designed cube satellite. He is still 4th year student of university, so I was surprised his ability. We can see his designs on Autodesk Online Gallery.

<Figure 30: group photo with Mr. Pillai and Mr. Pujari>

Our visiting time was rather short, but we had a very productive time. We appreciate their kindness.

5-4 TOYOTA KIRLOSKAR MOTOR Pvt. Ltd (Ayu Numata)

<Figure 31: TTTI students taking lecture>

TOYOTA Kirloskar Motor Pvt. Ltd is a subsidiary of TOYOTA Motor Corporation which is a one of the famous Japanese company, and manufactures 6 kinds of cars (ex. Innova, Corolla, Fortuner and Etios).

Firstly, we were explained this company by Mr. Miyakawa. Indian car market often fluctuates because there are 22 motor companies in India. Though TOYOTA does not have many shops in India, they provide high quality, speedy and careful services to each customer and aims to be the best in town.

Secondly, we visited Toyota Technical Training Institute (TTTI) with Mr. Takamatsu. This is a boarding technical school, and provides free chance of education to young people under poverty. The young people and their family can have stable live by this activity, and the company can train capable person who fill some level. This is the important for the point of coexistence with Karnataka where is this company. We looked at student's note written very carefully, so they seem to work on daily study earnestly.

Thirdly, we visited the motor plant with Mr. Sugiura. I was surprised at the differences about views toward their works between Indian people and Japanese people. Though most of us concentrate on works and work overtime naturally, Indian people take a rest freely and go home just the end of working hours. I think their living environment and their culture influence this phenomenon.

Finally, we talked with Japanese resident representatives working at this company. We were able to listen to the idea about building up careers at foreign country and what they do to come foreign country. In daily life, I don't have the chance to meet such people, so this talk was very meaningful to decide my future.

<Figure 32: group photo in front of TOYOTA>

Chapter 6 Others (Keigo Nakamura)

6-1 Mahabalipuram

Mahabalipuram is one of the famous attractions in Chennai, and it is registered as a World Heritage Site. We had a guide of two students of IITM when we visit it. I will introduce about the place where I visited in Mahabalipuram.

At first, we visited the shore temple. Shore temple usually had one more set of itself, but for tsunami, they had been streamed, so now there is only one set exists. There are lots of animals been carved, especially many cows exist. This is because of the idea that cows generate milks like human's mother. There are two people who guards it in front of these shore temples, this shows how Indian people thinks animals are important than human. Also, we went to the beach. There are lots of stalls, and one which amazed me the most is the merry go round because it was located on the sandy beach.

<Figure 33: Shore temple>

<Figure 34: Two guardians>

While walking through the Mahabalipuram, we see lots of kinds of murals, which are famous in the world. Figure.35 shows a battle between Demons and Gods. Goddess Durga is fighting the "buffalo-headed demon, Mahishasura" (not to be mistaken with cow).

<Figure 35: One of the murals>

At last, we visited the Butter Ball, which I want to see the most. It is named because it is like the Indian god Krishna's favorite food butter ball.

The mystery how it was in such a situation has not yet discovered. Seeing gigantic being standing under a miraculous balance makes me feel like I got some spiritual power. We tried to move it, but of course it did not move. It was not only a mysterious stone, but also attractive.

<Figure 36: Butter Ball>

6-2 Indian Food

In short, most of the Indian cuisine was very spicy. I guess that it is impossible for us to eat only Indian cuisine three meals every day, but the most of the spice were likely to be addictive. Of course, there was something extremely hot. I will show a part of what I ate here.

Figure 37 is the Taramani guest house's breakfast, Chutney and idli, it is a common Indian breakfast. Chutney has a little bit of hotness and a bit of sourness, more glutinous than Japanese curry. Idli is like a softer nan, which absorbs chutney much better. It was just right spiciness for us in the morning.

Figure 38 is zaitoon, a school meal in IITM. This has more various menu than Taramani has, so we go here as long as we are not busy. I ordered a lot of tandoori chicken, chicken biriyani, chicken masala, and pulao here.

<Figure 37: breakfast of Taramani Guest House>

<Figure 38: zaitoon>

Tandoori chicken was so good that I will recommend it. Its spiciness remains long and it was very addictive taste. Because it is painful, green yogurt which contains mint comes with a set

like in the Figure 39. Chicken curry was like a curry in Japan. In India, there were few written “curry” directly in menu. This time, chicken masala seems to be the nearest one to it, but the spiciness of it cannot be compared to one in Japan. Chicken biriyani is like a mix of rice and curry, which is showed in the Figure 40. It was also very delicious that I also recommend this. Figure 41 is Pulao. I think that it is only the food which is not spicy I meet in Indian food, and it can be expressed as fried rice.　I will recommend it to those who visit India and those who do not get used to spicy food.

<Figure 39: Tandoori chicken>

<Figure 40: Chicken biriyani>

<Figure 41: Pulao>

We also went to a nearby market. There was an ordinary food court. There were a lot of stores like KFC and Domino Pizza we have already knew, and the amount of it was not so much different from Japanese one.

In India, there are lots of stalls, especially many coconuts were on sale. The coconut’s juice was not sweeter than I thought, but after drinking all, the sellers cut the coconuts, and give us the fruit part. I never had anything like this mouthfeel before. If you have interest in it, please try it!

<Figure 42: KFC>

<Figure43: Coconut's juice>

<Figure 44: inside of the coconuts>

6-3 Chennnai Downtown

[San Thome Basilica]

Paved with pure white, it is very beautiful cathedral. When we went there, the wedding ceremony was just being held, so lots of people were there. Nearby there was also the museum for Saint Thomas and the tomb for him. In the museum, there are lots of things, showing lots of story about St. Thomas, for example, picture which shows the moment of St. Thomas accepts Christ as true is the Figure 46, the anecdote that a big tree that anyone could not move was moved by Thomas' instruction. From the middle time, local kind woman explained us the progress of San Thome, like when the tsunami arrived, the wave did not attack it as if it avoided it voluntarily. Owe to lots of episodes, it was a place where I could not help feeling the divineness.

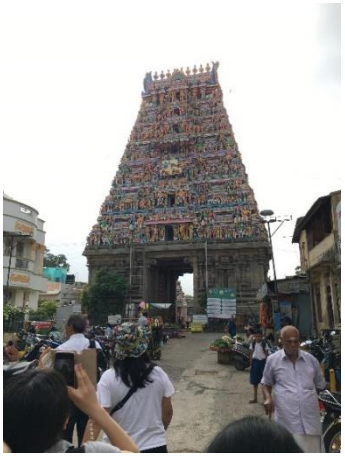
<Figure 45: San Thome Basilica>

<Figure 46: Picture of St. Thomas story>

<Figure 47: Inside of San Thome Basilica>

[Kapaleshvara Temple]

Kapaleshvara Temple is one of the famous temples in Chennai. It is also carved lots like the Mahabalipuram's shore temple, but the remarkable difference is its colorfulness. Japanese might be amazed of the colorfulness of the temple. To get inside, we have to take off the shoes, walk on the ground, so half of us gave up to enter in. It was surprisingly ordinary, expect of the existence of many dogs and cows, and the strength of people's beliefs.



<Figure 48: Kapaleshvara Temple>

[Dakshina chitra]

This is the museum where we can acquire the knowledge of the old tradition of India visually, locates on Kanchipuram and it is managed by NPO. They preserve the architecture in the north and the south of KERELA, which put place on caste system, the old Indian noble house and its play equipment, like the snake board game. Also, there are lots of information like the history of the TAMIL language, the stone used to create colors or whatever. Furthermore, events are also held, such as chair taking games and traditional dance performance. This time, our group had actually done Henna Tattoo. This place can enjoy not only by watching, but also by joining. Although we took lots of times, we could not finish see all of it. There are plenty of places here to watch.

<Figure 49: The entrance of Dakshina chitra>

<Figure 50: Kerela house>

<Figure 51: The event looks like a chair taking game>

<Figure 52: Play equipment>

Chapter 7 Comments of each student

Keijiro Nunokawa

Before I went to India I had two main purposes of this study program in India. One purpose is to improve my English skill. While we are in India, I was glad when I could communicate with Indian people in English. But sometimes I couldn't understand what Indian people said, and I couldn't say what I want to say. So, I feel I have to practice speaking English. Second purpose of this study program is to experience Indian culture, that is quite different from Japanese culture. I was the most surprised about Indian traffic culture. Indian people ignore the traffic lights. A distance between cars is too short. Drivers sound the car horn again and again. Pedestrians cross a street with heavy traffic. These things were very exciting for me. I could enjoy Indian culture.

Hengwei Zhao

It is my first time to go to India, and India is my third country I went abroad, another two countries are Japan and Thailand. Before going to India, I felt nervous because of the border conflict between China and India happened recently. I did some internet searchs about how India people think of Chinese. I found India people's impression to Chinese was not so good. However, I found its not correct as the internet said after I visited India. They were both kindly to Chinese and Japanese. So it made me feel good during being India.

It is also my first time to be a leader of the program, because I want to chanllenge a lot in order to upgrade my ability of being a global human resourse. Without leadership, how hard or how well I do, I will still feel lacking of something and cannot be a great leader.
There are 11 Tokyo Tech students, 1 professor and 1 assitant staff having this India trip. We got familiar to each other in pre-study before going to India and had dinner together to close our relationship furthermore. So during the free time in India, we played games for fun and went to the shopping mall together for meals, shopping and moive. We had much of pleasure.

<Figure 53: Members with IITM student>

At the first day in IITM, when we hesitate for where to go for dinner, an IITM student warm-heartedly came to us, and greeted us. Then he led us to the shopping mall for

dinner and we had a very happy and unforgottable night. He is in the left side of the Figure 53. I was very appreciated for his kindness.

As we all known, India has very severe sanitary problem, water shortage and traffic problem. We witnessed these problems by our real experience in India. But as we visited several labs in IITM and companies, they were doing these researches to solve such traffic problems. I believe that Indian scientists and engineers are able to solve these problems thoroughly in the near future.

Finally, it was an really unforgottable experience for me and I really enjoyed this trip in India. Thanks a lot to all of you.

<Figure 54: Members visiting Mahabalipuram>

Ayu Numata

The strongest thing I felt was about my language ability. In Japan, most people speak only Japanese and don't adjust to English. But, of course the communications with others are done by English in the countries where have many languages such as India. I felt using English is more usual than Japanese people think, and I should study English more.

Additionally, I saw the diversity of Indian culture. Before traveling, I had thought its culture is only one, for example, they eat only curry and Nan, all women wear Sally, and all men have a turban in my idea. But actually, they have various food culture and cloth culture, and some people were normal T-shirts and pants. I could experience a lot of cultures by visiting and looking in myself. At the same time, I thought prejudices make view narrow, so we should not only read books but also see by myself and feel virtually.

Moran Lee

Before I went to India, I have done some tasks about Indian traffic system problems. So, I think I knew how terrible it is, but I was wrong. It is even more terrible than I thought. Somewhere traffic light even doesn't work. And few people obey the rule. But some universities and companies are considering the solution of it. And there is also a serious garbage problem in India. Indian thinks nature can deal with their garbage just like it used to be, but in fact, in modern society we create garbage more quickly than the speed of nature. But Indian government is considering some ways to limit those garbage throwing behavior while it needs some time. So, I think we can expect the future of India but not now. But there is also something good in India. They are friendlier than I thought. And the price of food is very cheap.

Yuji Kirihara

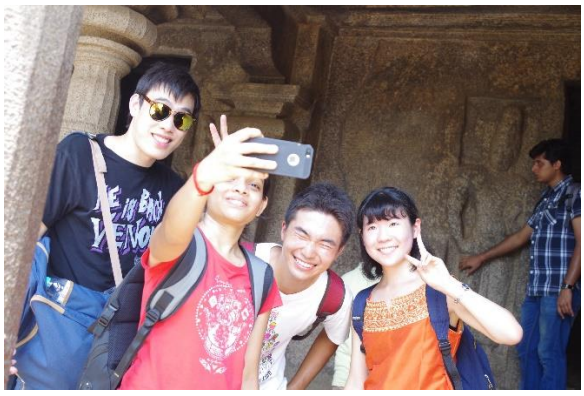
They eat curry three times a day.

This was my impression about India until I went to there. Honestly, this doesn't change even now though the true was 2.5 times. But this 10 days give me more things than this.

Taxi was driven as a racing game, university was like safari park and suddenly people stood and sang a national anthem in a theater. A mystery country, India, there was paradise for the straight man in comedy.

The thing I felt the most was "diversity". Few minutes driving led me to the temple of Hindu from the Catholic Church, a lot of language were spoken and one wall divided sleeping one-leg homeless and high-technology building. I think this "diversity" is what has been prevented past development, is resource of energy and become potential of India. I am wondering how this country will progress. Maybe, we participate of this. I want to go India after over 10 years.

This 10 days with laughter and tears, the reason of tears not by impress but by spicy chicken, will be treasure for me in the future, I'm sure that.



<Figure 55: Taking photo with IITM student>

Eriko Deguchi

What an exotic smell…! This was my first impression on India when I arrived at the Chennai International Airport. The atmosphere there was completely different from that of Japan, and as you can easily imagine, there were filled with Indian people. We were the only not Indian there and that made me nervous. I wondered whether I would survive in this completely different environment, who was living with no fear in Japan.

Through this short trip to India, I had a great chance to meet wonderful people. In IITM, professors and officers kindly guided us around the campus. Students also talked to us friendly and helped us being familiar with the campus and the city of Chennai. In companies we visit, the person in charge told us about the companies with speaking English slowly so that we could easily understand. Moreover, in downtown, we met many ordinary Indians with smiles on their faces. Some of them talked to us with Japanese, “Konnichiwa.”

These experiences made me feel familiar with India, and I felt that the nervous and fear I once had were gradually disappearing. On the contrary, familiarity and relaxing were emerging. With this my mind changing, I enjoyed every experience I had in India very much. Thank you for everyone who gave me this wonderful opportunity.

<Figure 56: Members in front of the shore temple in Mahabalipuram>

Keigo Nakamura

From the idea to pursue the chaotic world, and to get a culture shock, I decided to head to India. Just as I intended, when I first arrived at Chennai airport, I was overwhelmed by the spirit of local taxi's people competing to aim the customers, surprised by the behavior of drivers ignoring the traffic signal, overtaking one after another, and in addition, feel interested in the scene cattle and dogs were not afraid of human beings on the street, human beings also walking beside them without being afraid of them. Also, I was concerned about interaction with Indians, but through IITM, visit corporation, and sightseeing spot or downtown, I understand that they were very gentle, everyone was trying to listen to our bad English and even ask us spontaneously. At the same time, I felt that I had no choice but to feel my own defeat when I heard Indian people's diverse ideas, not persist only in those fields but others. Thanks to it that it works enough as a stimulus to study not only in English but also others after returning home. I feel many things through this short-term study abroad, but the most important thing seemed to be is to get accustomed to staying in India from the middle part of program. There was no fear in the congestion on the street, dogs and cows, and hesitation for conversations and going around the road went away. It is not yet to say that I can set a life freely at there now, but in this way, I feel that I can force myself to change my style, and I realized that the barrier to go abroad is not so much higher than I thought. This is what I want to emphasize from this experience. In that sense, I will like to go to more severe place like north India or other areas next time.

Mei Fukuda

Through experiences in this program, my way of looking at the developing countries has certainly changed. Probably, in the back of my mind, I regarded developing countries' situations as advanced countries' that of a former age. However, I could understand that India was India and nothing else. Its environment, history, and religion are definitely rooted in the current India.

In addition, Indian people struck me like as living just looking straight ahead, and not going out their ways. I couldn't help seeing massive potential of India. Although India might be lacking in the richness of the economy a little, there is the richness of the spirit. I think that even Japan can learn a lot of things from India.

Contrary to my forecast, I've come to like India much more than before visiting India. Traffic condition was just the opposite of Japanese one, almost all the food was very spicy... but for some reason, I felt comfortable in life in India. I'd like to go there again absolutely and keep chasing its growth.

Last but not least, I would like to express my appreciation to all the people I met in India, the teachers who leaded us, and the members of this program. All experiences in India will be meaningful for my future. Thank you.

<Figure 57: Horse ride in Marina Beach>

Nao Kitada

What impressed me most in India was that there was big gap between the rich and poor. There was not much difference between IITM campus and Tokyo Tech campus. In the out of IITM campus, however, there were many beggar and homeless. They sat on dirty road and other people passed by as if there were no people.

This visit makes me think about various things.

Luna Takei

The ten days in India were surprising and interesting for me. That there are cows and monkeys in the road is an obvious thing. To use the horn of a car was like a greeting. Anyway, the everyday life there was in a state of chaos. I experienced something I had never experienced in Japan, and this program was a very beneficial time.

When I visited companies in India, I was able to talk with Japanese people who work in foreign countries. It was not until after this program when I thought about working in foreign countries, so it was a good opportunity to broaden my horizons. When I took classes in IITM, I felt that students there had their clear purposes and studied for them. They asked a lot of questions in classes, but I could not. I wanted to improve my English ability even more.

The ten days of this program made me think about various things. I will make use of this experience in my life from now on.

Mitsuhiro Matsumoto

I think people who are studying abroad have some purposes. I participated in this program to change my view on my life. I have been interested in India since I listened Professor Ueda's lecture before. When he was a university student, he went to India with his friend's recommendation. And then his life was changed completely while he went to India. He has said me many times that "I recommend you go to India, and the world you see will change." In my case, my life has not been changed so much, but I found a way to make a big change. So, I thank this program for giving me a way. However, if I don't practice it, it will become a meaningless thing. I don't want to do an effort wastefully. So, I want to be hard every day until I practice it. I hope you who want to study abroad to have some purposes during next program. Sometime, there are things that you cannot act as you want, but I want you to correspond with a heart of permission. Only you need to do is to keep your eyes on your purpose. I hope that your study abroad will bear fruit.

<Figure 58: Photo with IITM student>