



# The 2014 World Plumbing Council Developed and Least Developed Countries Scholarship Report



*(Exclusively Sponsored by the Indian Plumbing Association)*

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Mongolia

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## 1. OBJECTIVE

My objective was to study how plumbing affects and enables the supply of drinking water, focusing on water and sewage piping installations in Australia.

I also wanted to study Australian plumbing advanced, technological progress.

From my experience, I want to learn new information and techniques to give quality training to my students and share the knowledge to develop a new plumbing system in my home town, Khovd, and the rest of Mongolia.

## 2. INTRODUCTION

My name is Sandag Bataa. I work in Khugjil Polytechnic College as a Plumbing teacher in Khovd Province which is located in west side of Mongolia.

It was an incredible chance for me, that I was given a scholarship from World Plumbing Council in 2014.

I am glad to contribute my knowledge, skills and meet many nice people in Plumbing Industry Climate Action Centre, in August of 2015 during a 3 weeks scholarship time. I saw the wonderful, green, continent of Australia. Melbourne, Australia is very nice and the people are really friendly. However, I had language problems during my experiment study tour. The Australian Plumbing council's intimate coworkers gave me all around help to understand. I want to say again, I am glad for the explanation of some words that helped me use new technologies and materials. You have helped me tremendously and I thank you from the bottom of my heart.

I am glad for World Plumbing Council's Chairman, Mr. Sudhakaran Nair, which first gave this scholarship, Mr. Shayne La Combre, Mr. Greg Tink, who picked us up from the airport, Mr. Joe Mieczkowski, Mr. Scott Dowsett, Mr. Norm Anderson, Mrs. Marilyn Padgett and to other many people. I want to give my thanks in this report. I want to contact you and receive advice about activities which will implemented in Mongolia.



*With: Greg Think , Joe Mieczkowski , Marilyn Padgett*

### 3. ABOUT MELBOURNE CITY IN AUSTRALIA

Melbourne was established in 1835. It is a big city that has about four million people. It is very beautiful and has new buildings which are located on the south side of the country.

Melbourne has the largest population and provides environmental conditions for people to live comfortably. One aspect that I believe created a comfortable environmental condition is that there are many parks and gardens in the city. It has a big garden which surrounded the hotel we stayed in.



In my opinion, families seemed to be very happy, as I observed them walking on week days. People played some games and other people walked their dogs.

In my opinion, those living in Melbourne are given the opportunity to have many non-essential, useful items. For example, in one garden, I observed a running- track, table and chairs, many kind of strengthening equipment, electric oven which roast meat, comfortable toilets, a children's playground, gazebo, rubbish- bucket, water fountain, free plastic bags for owners to pick up after their dogs, and a square and equipment for sports games which were all free to the public.

In every person's yard there were trees, nice lawns, and flowers in the surrounding houses and streets. The community cares for their yard very much. It feels calm to go down the street and to see many colors of roses and flowers everywhere. It seems similar as going into a forest.

Generally, the weather is warm; but, it changed very fast. It seemed as if there were all four seasons of the year in just one day.

We visited two zoos, which has many different kinds of animals. I have never been to a zoo prior to visiting the ones in Australia. The Zoo has a lot of things to see.

I also saw a sea. I saw some sea animals which I have never seen before. It seemed interesting and strange to see these sea animals.

Overall, I did not see people who were angry and/or argued each other in this city. People's lives are good. People follow the law and their environmental conditions are comfortable. I wish them well. One day, I will return to Melbourne and meet my Australian friends.

#### 4. ABOUT PLUMBING INDUSTRY CLIMATE ACTION CENTRE

Plumbing Industry Climate Action Centre's (PICAC) workers are very friendly. PICAC organized training for their workers to improve their skills in welding, plumbing, and fire system.

During my scholarship term, I was introduced to many kinds of teachers. Some of the teachers taught me short term lessons. The trainings during my short term lesson included labor safety, scissor lift, fire system, welding and plumbing.

Many plumbing industries decided to come together and work co-operatively to establish PICAC in Brunswick, Melbourne, Victoria. PICAC is an industry partnership supported by the Plumbing Trades Employees Union (PTEU), Master Plumbers' and Mechanical Services Association of Australia (Master Plumbers), National Fire Industry Association (NFIA), and the Air Conditioning and Mechanical Contractors' Association of Victoria (AMCA). PICAC is a whole-of-industry collaboration, driving innovation and efficiency across the sector and the economy.

PICAC was established in 2009, and following a successful period of development, is now moving into a phase of consolidation and strong growth.

PICAC's achieving objectives:

- Delivery and development of training and facility resources.

PICAC has facilitated and supported the delivery of training to the plumbing and related industries. For the most part of this has involved PICAC facilitating training that was delivered to industry participants by its industry partners and stakeholders.

- Partnerships, industry Engagement and Research
- Corporate, human resources and information technology.



*Fire Industry: The teachers' team was really sociable and they were nice coworkers. When I was there, the teachers taught theoretical and practical lessons together. Students had the opportunity to ask any of the teacher's questions regarding what they were interested in.*





*Classes of PICAC Training Centre*



*Welding and fire system teachers introduced practical classes.*



*Bathroom toilet with wet sink attached*



*Student who made a small fire system*

*Lavatory/practice classroom*





*Lavatory/practice classroom*

In a fire system training class, students connected pipes from a special prepared illustration which they gave to the teacher; and, after the students finished their practical lessons, the pipes were checked by placing water inside the pipes to ensure that they were connected correctly.



*Theory class.*



*Rubbish of used pipes.*



*Training illustration*

## Participated in labour safety training of PICAC

It is very important to provide labour safety. During studied Australian PICAC, I searched many things about labour safety rule. I learned appropriate work safety from roofs training. In that time, I understood how to follow labour safety from teacher, Ron Burgess, and I compared the safety to the safety that is learned in my own country. At the training, I studied Australian traditional method to safely knot ropes. I am glad for Ron Burgers who thought me Australian building labour safety and taught me how I can work safely.



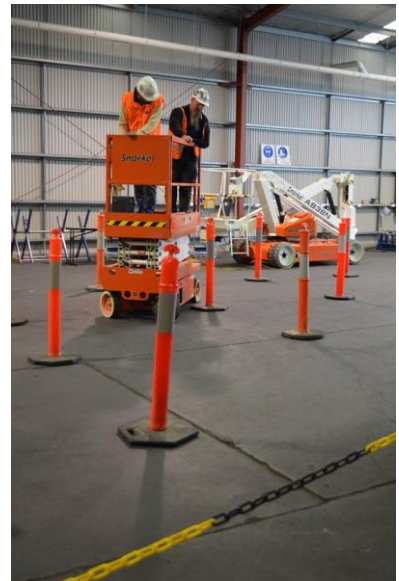
*Practice about using the safety belt correctly.*

### Included scissor lift training of PICAC.

One of the most interesting trainings I was included in was the scissor lift training. In this training, I studied how to drive a scissor lift in a building. The training increased my knowledge about when working in a tall building. After the training, we practiced how to drive a scissor lift. This was the first time I drove a scissor lift. It was interesting, funny, simple and easy to me; but it demands high response and attention. I am thankful for this specific training and what it taught me.



*Labor safety classmates*



*When I drove a scissor lift*



*Scissor lift classmates*



## Plumbing training of PICAC.

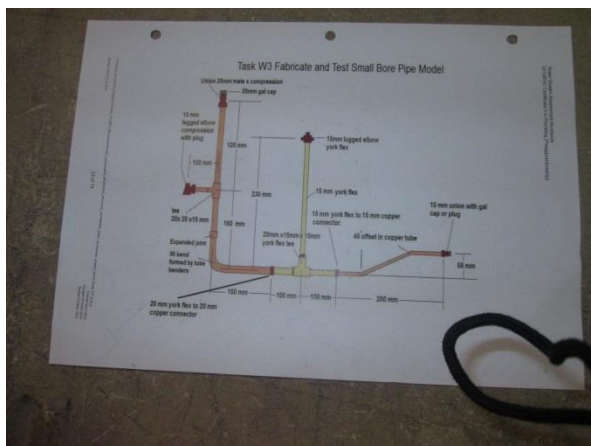
Plumbing system piping provides an important aspect of human health; because it delivers the safety of drinking water. In the practice class, useful equipment and the instructions were clear to understand. The room was also comfortable and nice.

The students completed the practical job according to the teacher's instruction and according to the work plan's standards. After the student's job was checked by their teachers, they were given their next job. I would like to use this concept for my own students to ensure that they understand how to complete a job correctly.

After students are given their work plan from their teacher, they list materials and equipment that they need. Then, they take their materials to the warehouse and do their job. After they are finished they are expected to put their equipment and materials back in their place. It seemed to be very orderly.

My first job was to connect pipes made from copper pipe, shark bite pipe, and thick pipe. After my job was completed, I checked the pipes by water. This was my first time ever connecting copper pipes. By using copper pipes in plumbing, it provides longer usage and cleaner drinking water. I think that a day will come when we will use copper pipes in my country too.

I am glad for Alex Mannell who introduced Australian plumbing system and training to me.



*My creation which was done by copper pipe.*



*Teachers and friends who were included in the plumbing training*



*Practical class of plumbing.*



## 5. ABOUT PROFESSIONAL EDUCATION SCHOOL AND TAFE

We visited a Swinburne TAFE school which has a history of over 100 years. This school was nice and comfortable and its training direction is plumber, carpenter and electrician. Students enroll in Australian TAFE when they finish secondary school. Each profession has their own time frame to complete their term. I am glad for Mr. Anthony Van Buiten who introduced everything that was in the plumbing practical room.

Certification III, to become a plumber, the training has six basic courses:

- Water stream (24 core units and 5 elective units)
- Sanitary stream (6 core units and 4 elective units)
- Drainage stream (9 core units and 3 elective units)
- Roofing stream (8 core units and 4 elective units)
- Gas Services stream (12 core units and 5 elective units)
- Mechanical Services stream (4 core units and 11 elective units) (Mechanical Services stream not currently available)

Students attend a course as part of a four-year apprenticeship. Successful completion of this course will allow students to attempt the plumbing registration exam conducted by the Victorian Building Authority. Students learn the skills and knowledge required to work in their specific area of plumbing, such as water, sanitary, drainage, roofing, gas services or mechanical services.

For the Certificate III in Plumbing qualification, students are required to complete the Water and Sanitary streams, and must also complete two of the following four streams: Drainage, Roofing, Gas Services, or Mechanical Services

Australian TAFE theory class and practical room are located together. Therefore, it is easy to practice their theory. The practical room has modern progressive technology and stands.

The teachers first teach theoretical knowledge to their students and, they give their students homework according to this topic. Then, students prepare the materials from this homework. After the students finish their job, they take an exam.

The practice room has enough space to organize plumbing training. During practice lesson, all professional teachers organize their lesson together. So you can see from this, they have wonderful skills to work together as a team and train each other very well. For example: if the carpentry students make a model house by wood, the plumbing classes will add the roof from sheet metal, and the decorator class students paint. After that, the home is ready to be bought.



*Creation of carpenter and plumbing students.*



*According to teachers homework every students do their work.*

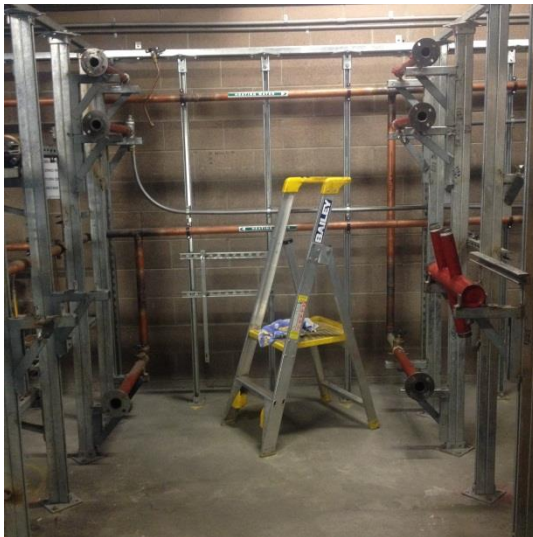


*According to teacher's homework, students find the correct equipment to use. After they are finished, students take their equipment back to where it was located.*

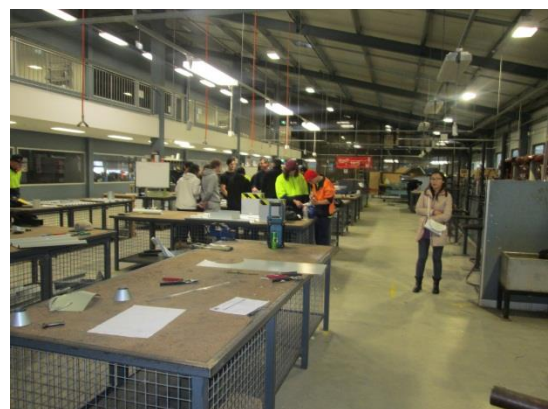




*Practical class of plumbing.*



*Practical class of plumbing.*



*Practical class of plumbing.*

## **6. ABOUT NEW HOSPITAL BUILDINGS WHICH WERE BEING BUILT IN AUSTRALIA**

The hospital sector is very important in Australia. While in Australia, I visited three new, big, hospital buildings.

In the hospital, Mr. Scott Dowsett discussed the plumbing system, ventilation sewage, about how to save the rain water, water saving containers, fire signaling system, home gas system, and room organization. I am glad for Mr. Dowsett's coworkers. I asked about job organization, safety and met workers who were working at the building site. All three buildings had similar building designs.

One hospital name was Monash. The building process for the Monash Hospital recently began.

The Bendigo hospital's building was about seventy percent completed, and the Epworth Hospital's building will finish soon.

These three buildings were interesting for me to see because of their similar designs. I was able to see the plumbing system in one hospital and compare it to the other hospitals.

Australian has a lot of raining water, the tank that collects water was created for rain water, laundry, and the shower. The water is then used in the fire system and lavatory pan/toilet.

To me, the plumbing system is wonderful equipment, great job organization, creates labor, and creates good job positions. The plumbing and electrical system also used additional source such as the sun, which conserved energy and decreased the amount of electric being used.





1. Roof surface
2. Gutter mesh
3. Gutter outlets
4. Rain heads
5. Water diverter
6. Tank screen
7. Water tank.
8. Insert Proof screen
9. Tank
10. Pump system
11. Rain water filter
12. Water level monitor



*Pure water tank of  
Bendigo Hospital  
process of plumbing*



*Sector line and  
plumbing equipment  
connection of hospital  
building.*



*Hand washing sinkk*



## 7. ABOUT REGISTRATION VICTORIAN BUILDING AUTHORITY

We visited a very important organization that licenses plumber development in Melbourne, Australia. This organization is the Victorian Building Authority (VBA). Following is the Organization's jobs:

1. Classes of plumbing and VBA database
2. Plumbing Regulations
3. National Training Package
4. Registration Level Assessments
5. License Level Assessments
6. Practitioner Application From
7. Assessment Analysis
8. Learning Resources
9. Sundry information

TAFE professional teachers give an important examination to plumbers, then TAFE professional teachers, submit the results of the exam to the VBA. The VBA confirms and gives special certification to the plumbers. The certification has special colors such as grey, blue, and green which represent the plumber's skill level. We appreciate Mr. Jeff Gilmore, Mr. Gerard O'Farrell, Mr. Ross Marshallsea, and Mrs. Karen Berriman for introducing us to this organization.



A typical plumbing VBA registration card. Note: This plumber is qualified as a licensed plumber

## 8. CONCLUSION

Mongolia has a proverb that says if people do not move until someone says, paper do not change until someone use. In example, because paper is thin, it will not tear until someone cuts it.

A person has to experience new things, cultures, professions, etc., by others; therefore, people cannot create new ideas on their own without seeing what other have done. Same as that, it is very important to study new things in another country.

This scholarship gave a huge contribution to my knowledge, education, and attitude. Now, I feel that plumbing is very important to nature and humanity. However, the scholarship term was short.

The scholarship has given a result of showing me many things. I am glad for WPC and Mr. Sudhakaran Nair who gave me this nice chance. I will try to contribute to my country's development. I wish, this chance will be given to many other plumbers who are similar to me; and, who will contribute to their countries. I am glad for Australian WPS's friendly coworkers who helped me with all things and organized many activities while I was there. If I have a chance to study in another country, I will choose Australian again without any doubt.

When I returned to my country, I discussed to my little students about this scholarship; and, about how important professional plumbing is. Then, I introduced it to the teachers who I work with. I talked about Australian's professional education system, method of theoretical and practical lessons, and things which I saw. Now, I am organizing Sand Square in my practical class. After my time in Australia, It is easier to teach about sewage, water pipes, and line.



*Me explaining to the new plumbing students about my scholarship*