**I:** We learned about five types of staff in the previous survey. Like general worker, operator, supervisor, technician, and higher management. Now we will know about three types of workers (such as operator, supervisor, and technician) who are directly related to production. We will divide these three levels of staff into two levels. One is the lower-level employee, and the other is the mid-level employee. At first, I want to know how would you organize these three-levels of staff in which level (above mentioned two levels). I would also like to know if there are different categories in each level, and why and on what basis each level is again divided into different categories. What is the uniqueness and difference between each category? Please explain the details. We will focus on the two (the lower-level employee and mid-level employees) levels in the discussion onward. #00:01:37-0#

**P:** We have three levels: the operator, supervisor, and technician. If I start with the technician, basically they work under the Maintenance Engineering Department. The Maintenance Department works on the breakdown, regular maintenance, and troubleshooting of our machines. Those who work in maintenance are technicians. Their educational background is usually technical education (TVET: Technical and Vocational Education and Training). They hold a diploma certificate degree from the technical education board. We have also B.Sc. engineers who basically lead the team. Those who are experienced in practical work get more importance. For example, I won’t get the welder operator who learns it from the textbook only. So, those who operate welding machine, those who do the AC repair work; the AC filter cleaner and those who work on AC maintenance (......), in these cases, it turns out that people who are experienced in practical work do better than those who learn from textbooks. So, we have both options, for example, someone who comes from technical education (TVET education) have the opportunity to work here, at the same time those who have practical experience also have opportunities. We have different types of technicians here. For example, an Electric technician for electrical work, a different technician for electronics, AC refrigeration, and mechanical work (...). People with practical experience the troubleshooting of the machines. Besides, there are some people from technical education (TVET), and there are some people from B.Sc. Engineering and also the hierarchy is set that way. Those coming from practical experience are at the lower level, those who have educational certificates (TVET) are at mid-level, and those who join here after completing their graduation degree (B.Sc. engineering) they are at the top level and lead a small team. #00:04:24-1#

**I**: Does that mean those who come after completing B.Sc. are at the top of the hierarchy? #00:04:26-3#

**P:** Yes. Let's talk about the supervisor. The supervisor level is in the best of three levels. We never appoint supervisors from outside. Those who become accustomed to our office culture in on-the-job training (they know the ins and outs of our operations) basically, supervisors are promoted from them. Usually, line operators or those who work on the line, those who work on packing lines or production lines - they (supervisors) lead these lines. Supervisor posts are small in number and they supervise smaller teams who work in different operations. Usually, they have very little practical on-hand jobs. They basically have to do more of the documentation work.

In the case of operators, what happens in pharmaceutical industries is that different pharmaceuticals have different machines. I'll bring in an experienced operator from any other company and put him to operate a machine but he can't do, because the machine he used it isn’t available here. There is not much benefit from this kind of experience unless there is an educational qualification from somewhere else. Because, how many machines do you teach him to operate? There are some common operations e.g. granulation operation, its processing is roughly the same across all companies. Learning these operations from another organization is really enough. But some companies run their production machines manually some run auto machines. Some may operate with a Korean machine, some may operate with a German machine, and some may operate with a British machine. European machine’s pattern, the Korean machine’s pattern, the Chinese machine’s pattern is not the same. The machine operator is a very important position in the pharmaceutical industry. Because these machines are very fast, automated and of large volume. As these machines are software-based, they are very sensitive. So, we need efficient operators. In this case, it is very unlikely that our company will be benefitted by bringing in a machine operator from another company. And all the companies are a little sensitive to their operators. Usually, operators do not change the workplace that much. In that case, our organization looks for hiring a worker – who has a fairly educational qualification so that one can understand when reading an SOP (Standard Operating Procedure; since SOPs are all in English). If the auditor comes, he/she can explain/ interpret the SOP. We might develop people who have the least understanding capabilities. It takes about two years for us to be developed a machine operator (if we want him to be skilled). We give the operator the time or opportunity to develop. So, in your survey, the most important for pharmaceuticals is the machine operators and maintenance technicians. Because you can get general worker, it's very easy to get them because of the manual pattern belt has an instruction on how to pack. An experienced operator runs this packing belt. If someone inexperienced comes, he will sit down with the experienced operator and watch for a while and learn how to operate it in a half-day. It may take a month to speed up the job but he'll learn the job in a half-day that how it has to be done. In the case of the technician, the problem is – there is a difference between experience and inexperience. When an experienced technician approaches the same machine repeatedly, it is easy for him to troubleshoot. He often heard the noise and can realize that which part of this machine is actually having some problems or not. And an inexperienced technician can't do that. That is why it is seen that in most places in the pharmaceutical industry, they maintain their own maintenance. In their case, the team combines this way like there are some who don’t have an education certificate but have practical work experience and there are the certified people. Companies make a team by combining them. There is also a full-fledged engineer as a team leader so that he can monitor whether they make a mistake in doing work or not. Both technicians and machine operators are important to us. Earlier we participated in another survey where they were trying to develop some skilled workers for Pharmaceutical Industries. In that case, we were saying the same thing that we need training in these two levels. But it is very difficult to make an operator by training because every machine is different here. Now, everyone doesn’t run the same type of machine because machines are manufactured in many countries; everyone brings machines based on their advantage. Here in this context, we are facing a lot of difficulties. Generally, if an operator leaves the workplace then the general worker is promoted as an operator. Operators are one step above the general worker. # 00:10:16-4#

**I:** Does that mean if we rank, then the operator is a lower level worker? #00:10:23-5#

**P:** At first the supervisor, then the technician, then the operator. A technician or operator can also be promoted as a supervisor. A technician/operator is promoted to supervisor level depending on the type of work and experience (though trained in two skills areas). And despite the hierarchy of the technician is lower than the supervisor, but technicians are always paid high salaries than supervisors. Due to the market demand, you cannot hire a technician with a low salary. If they want to work independently, they can earn a lot of money. In that case, we have to keep them with a little high pay. Every company is facing this problem. Instead of seen it as a problem, it’s to be seen as the market demand. In fact, according to the demand, good technicians are not available in the market too. #00:11:22-6#

**I:** In that case does the technician get more salary than the supervisor? #00:11:25-7#

**P:** Hard to say, it's Black and White. Usually, the salary of the supervisor is higher. It is likely that although a supervisor has a lot of experience a technician quickly catches him (supervisor) and reach equal level. This is how the technician's salary is to be fixed in that way. If a supervisor comes from the technical side, his salary is definitely much higher. But if a supervisor comes from the non-technical side, his salary is often less than that of the technician. The salary range is fixed in two ways at the Pharmaceuticals factory. One is the technical wing and the other is the non-technical wing. The technical wing always gets a higher salary and it’s not a matter of hide and seeks. Those who join here are told that even if you work in the same grade, you may be paid less than the technical ones as you do non-technical work (They can compare even though I work in the same grade, why my salary is lower?). Therefore, technicians always have to be paid higher salaries. Because retaining technicians is a big challenge, for example AC operators who fixes air conditioning machines if they instead of working here, works somewhere else or start working in the TV refrigerator shop in electronics, they even will earn a lot of money. That’s why the technicians always get higher salaries. #00:13:00-8#

**I:** Now, if we ask you to divide the supervisor, technician and operator into two major levels named low-level employee and the mid-level employee then where do you put all three categories of employee? #00:13:13-9#

**P:** In that case, the operator will move to the low level. The technician and supervisor will come to the higher level (at the end of the interview they are ranked at mid-level). There are two types of operators in our company. One is machine operator who operates machines used in production. This area is controlled. Mainly, there are one to two machine operators for a machine where production taken places. One of them operates the machines, another is for backup. The operator who runs the machine may need to go to the restroom, or can feel bad. So, we keep a backup operator for him. For each machine, two operators are always there. Other operators who work in the packing belt to pack up. Those who work in the packaging are below the machine operators. These packing operators will be in the lower grade. The job of the packing operators is to calculate the strips of the products that come in the belt and packing them. The machine operators are definitely in the upper grade than the packing operators. The machine operator's job is to run the machine. Most of the machines we run are automatic machines. What the machine operators have to do- whether there is a problem with the machine or require an emergency shutdown, the machine provides some readings, the machine operator is to monitor whether the readings are abnormal or not and act accordingly. They have this training and as they become more experienced we find that they feel comfortable to operate those machines. #00:15:06-10#

**I:** What are the educational qualifications of the machine operators? #00:15:15-11#

**P:** The educational qualification for them (machine operators) is at least H.S.C (Higher Secondary School). It is often seen that an H.S.C (Higher Secondary School) pass student is not so good in English. At Pharmaceuticals, we have to face audit on a regular basis. If you want to export, then you have to face external audits or by their drug authority or the audits even from the inside (own). When it comes to facing these audits, they have rules. They give the questionnaire directly to the machine operator and the machine operator has to explain it, not anyone else. As the auditor has a copy of every SOP (Standard operating procedure), the auditor often tries to match/check whether the operator is following the SOP. So he (the operator) must have at least this ability. Their highest educational qualification is Degree pass (Graduation). #00:16:17-12#

**I:** Those who study Pharmacy where do they work? #00:16:19-13#

**P:** Those who come from the pharmacy background basically work in our QA (Quality Assurance), QC (Quality Control) units. They work in quality control production (...). The people who are here as supervisors are not supervisors, basically, they are the team leaders. Those who are the team leaders have a graduate degree in Pharmacy and definitely, they ranked higher than others. Those who work also in production as our officers, team leaders are also Pharmacy graduates. After passing from Pharmacy, they work here in the production officer post and as a team leader. Again, our pharmacists work in quality control, quality assurance department. They also work in the Research and Development wing. In these places, we need Pharmacists. The pharmaceutical industry is certainly over numbered by Pharmacists. Because when we go to release a product, we need three pharmacists. The two check together and then other cross-checks and report it to the QA Head. The product is released after their release. So, we need a lot of pharmacists. They basically work here as executives. Pharmacists who work in production are the team leaders. Two to three supervisors, some technicians, and operators work under them. Those who are technicians basically do not work under the control of pharmacists. The technicians are under the engineering department. They perform their tasks on need basis and following the regular maintenance routine. #00:18:26-14#

**I:** That means those who perform production-related tasks among them pharmacists act as team leaders of supervisors. That means team leaders supervise supervisors and keep a production officer with them. Are production officers belong to the supervisor level or the operator level? #00:18:56-15#

**P:** They are at the upper level than the supervisors (production officers are at the supervisor's upper level). #00:18:59-16#

**I**: Are those who work in Quality Control also at this level (equivalent to Production Officer)? #00:19:14-17#

**P:** At this level. ##00:19:15-18#

**I:** Are they called high-level or mid-level? #00:19:17-19#

**P:** These are called mid-level. Those who mainly work as officers are employed at mid-level. At a high level - there are production managers (who will be meeting with you), he leads this whole team. So he stays at the high-level in terms of rank. He has some production officers under him. If you want in orderly, the whole chain will hit center at this point. #00:19:43-20#

**I:** Of those who are related to production, we really want to know the three groups of operators, technicians, and supervisors. And we want to see them at two levels - mid-level and low-level. #00:20:04-21#

**P:** Your concentration is actually in that place- those who work in practical hands, those who work in the line and on the ground level- you want to divide that level. If you do that and compare among these three then the supervisor will be at the top level, then the technicians and operators at the bottom end. #00:20:21-22#

**I:** Well. Supervisors, technicians, operators are ok. But do I keep quality controllers and production officers at the high-level or keep them at the mid-level? #00:20:30-23#

**P:** In that case, you will keep them at a high-level. They are involved with the production. What happens in pharmaceutical production those who work on-line work but when a PMR arrives, the production release document comes at that time there must be a pharmacist present and he has to supervise the whole documentation process. The three categories you are referring, they work on the ground level. Whether these three types of workers are working on-line or not, their entire supervision plus documentation is their responsibility. They are white-collar employees.  #00:21:12-24#

**I:** So you're saying that they are high-level workers? #00:21:18-25#

**P:** They are high-level workers. #00:21:19-26#

**I:** But they are related to production, is not it? In that case, then they have to be with them. #00:21:26-27#

**P:** Yes. If you keep them together and they are related to the production then you have to divide them into three levels. The quality controllers, production officers, and executives will be at the highest level then the supervisor, then the technician, the operator at the end. You have to take all three. You need them since you are talking about those who are directly involved in the production. Quality Assurance is directly linked to production. And Quality Control works in the Lab. Quality Assurance also works in the lab and on the ground floor; they are representative of those who work in QC (Quality Control). That means you can't do anything without clearance of QA (Quality Assurance). The QA (Quality Assurance) manager and officers provide line clearance. After issuing a QA (Quality Assurance) clearance, the production officer allows the operators to start work. #00:22:32-28#

**I:** Who are they? #00:22:33-29#

**P:** They are the officers of the operators, production officers. Then the rest of the team started working. #00:22:38-30#

**I:** Is Quality Assurance's rank above the Production Officer? #00:22:42-31#

**P:** No, they are at an equivalent level. If you count in terms of authority then QA (Quality Assurance) is the most powerful in the pharmaceutical industry. They are the most powerful because nothing happens if they don't give clearance. Along with their authority, the quality of the product also depends on them. If there is an accident or a problem with a product, then the production officer will not be accountable but Quality Assurance officers. They will be asked why they gave the line clearance. Why you gave that permission? Therefore, their liability is high, while their authority is also higher. #00:23:18-32#

**I:** There are quality assurance and production officers at the highest skill level. What is the difference or uniqueness of the work between these two groups? #00:23:34-33#

**P:** I think you should keep this question for the production manager. The production manager who comes to you will answer this question better than anyone else. During the handover, I will tell him that you answer this question from the outside (by his side). #00:23:55-34#

**I:** We will talk about this group later. The supervisor and the technician are the mid-skill employee. What are the job characteristics and differences between the supervisor and the technician? #00:24:13-35#

**P:** Supervisors lead a small team that is everyone on the team doing their job properly or are they having any problems? So to run a team, supervisors divide the team into some small sub-teams. Supervisors work on documentation as well. If something needs to be done at a higher level than the supervisor communicates with the high level and maintains the things. Suppose there are three hundred packing operators, three hundred packing operators have three supervisors, which mean every supervisor has a hundred employees. Now there will be chaos if three hundred people want to interact with the officers individually. So to work in a hierarchical order, the supervisor acts as a representative, for example, keeping in touch with high-level staff regarding low-level staff. Technicians are like a reserve force. They basically have to do two things - one when a machine needs troubleshooting or a breakdown, the technicians work to repair or start it. Another task is regular maintenance. In the case of the machine and the packing operator - as long as the production machine operates, he will be near the machine. And according to the log sheet, packing operators finished the packing. #00:29:45-36#

**I:** Do the technicians bring any types of technical certificates?  #00:29:59-37#

**P:** As someone who comes to us with a trade course, someone brings practical work experience from an early age. Then there are some diploma and BSc engineers. So our technical team is made up of all kinds of people. #00:30:18-38#

**I:** And those we call QA (Quality Assurance) are BSC Pharmaceuticals? #00:30:23-39#

**P:** Yes. #00:30:24-40#

**I:** And the supervisor is selected based on experience from the operator or technician? #00:30:30-41#

**P:** They come to this place after being promoted based on experience from the operator or technician. #00:30:35-42#

**I:** And what is the background of the operators? #00:30:40-43#

**P:** SSC or HSC is required for the recruitment of machine operators and SSC for packing operators. #00:30:53-44#

**I:** Do they have any technical or vocational qualifications? #00:30:58-45#

**P:** No. As I said earlier, since the machine is different, we may not get any benefit even if there is a technical or vocational qualification. When we bought a machine (In the case of the old machine, or a new product or for increasing product volume we have to buy a new machine). There is a budget for training when purchasing a new machine. And after the machines are brought in, a few people had to be present on the machine's Factory Acceptance Test (FAT).  A team of two or three from senior management goes to the Factory Acceptance Test. The machine supply company runs the machine to show whether the machine operates according to the needs of the company, they practically show how to operate the machine and whether the machine is functional.

There are high-level officers who have a lot of experience because they have to make decisions even though they are not directly involved in the production. If all the functions of the machine are correct then they fill in the logbook and bring training to operate the machine. Their technicians arrive and train our operators (two or three are pre-selected to operate this machine) when the machine is installed in the factory and they also give a short training to our technical team at that time. They fill out the training module form to find out who has received the training. After that QA (Quality Assurance) documented that which persons had received training to operate the machine. #00:35:21-46#

**I:** What are the educational qualifications of those who make higher-level decisions? Pharmacy or technical? #00:35:33-47#

**P:** They are basically Senior Managers. It depends on which department he is working in. If he works in production then he is definitely a pharmacist. A group of people who go to see the machine is a pharmacist, another is an engineer. They go from the senior level. An engineer and a pharmacist must be there. #00:35:57-48#

**I:** From here we get three parts - quality assurance and production officers are high-level workers, supervisors and technicians are mid-level workers, and the operator is a low-level worker. One of the operators is the machine operator; the other is the packaging operator. Technicians have four parts, for example, electric technician, electronics technician, People who do maintenance and mechanical technician.  Now we will go to the next discussion based on these parts. What criteria do you consider for each level when hiring staff at these three levels: lower, middle, and upper levels? #01:02:24-49#

**P:** It depends on what job he is being taken for. For a higher level, you must be a BSc Engineer or B.Sc. Pharmacist or Graduate. He must be a pharmacist when it comes to production. //Now for the mid-level, such as technicians, supervisors// In the case of a supervisor who has experience working on the line, has practical work experience, has the ability to run a team, and the educational qualification must be at least S.S.C. If supervisors are directly recruited, we usually ask for a graduate (B.A / B.Sc.).

In the case of the operator - if he is a machine operator, we try to get someone with experience. However, it is difficult to find an operator with direct experience. Age is considered as a factor and at least SSC must be passed.

In engineering, we also look at work experience with a degree from a vocational training or technical board. We give it preference and we also see the experience. Many who are inexperienced appear to be taking the board exam for certificates. Practical may not have been the focus so in that case, we recruit with a skill test.

We consider SSC pass to be the minimum educational qualification for packing operators. No need working experience, quite fresh, anyone is recruited if he is 18 plus. We do not appoint anyone below the age of 18. But according to law, we can hire people over the age of 16 as packing operators but we don't do that although it’s not really a heavy job. #01:05:11-50#

**I:** B.Sc. in Pharmacy is a special qualification for high-level employees involved in the production. For mid-level staff, at least must be S.S.C passed. What is the special qualification of your organization for them? #01:05:31-51#

**P:** Graduation. It's not like he has to be a science student. If a technician wants to become a supervisor, he or she must have a diploma. To get to the supervisor level, it requires both an experience and a degree. But those who have gained experience by on-job-training these skilled workers can be promoted to the supervisor level. #01:05:58-52#

**I:** What is the special qualification for low skill employees? Is it experience and training? #01:06:04-53#

**P:** Yes.  #01:06:05-54#

**I:** In these appointments, you are talking about TVET rather than school. But in the case of the technician, is there TVET or not? #01:06:18-55#

**P:** In the case of technicians, there is TVET. #01:06:19-56#

**I:** In this case, is TVET given more importance as the first criterion or the other? #01:06:33-57#

**P:** Educational qualification is more important than TVET if you come in higher grades. Like if he comes from the pharmacy. In our pharmaceutical industry, educational qualification is more important, that's how much knowledge he has. TVET is a technical education, but here knowledge takes more importance than technical education. Because they will work on the decision making position. So, educational knowledge is more preferable in their case, the same as for the engineers.

TVET is very important for both mid-level and lower-level operators. In our industry, educational qualification, TVET and experience are all important. As far as I know, TVET is given more importance in garments. #01:07:45-58#

**I:** Does your organization place more importance on those who have experience than those who have TVET? Do you seek theoretical and practical qualified TVET or only theoretically qualified TVET?

From your point of view, I can take the answer that in the case of a B.Sc. Pharmaceutical, educational qualification with knowledge is seen. The rest tries to coordinate with the Experience while recruiting at every level. Theoretical and practical knowledge are seen in related to educational qualifications and related knowledge. #01:08:27-59#

**P:** Yes. #01:08:28-60#

**I:** Is TVET more or less important than school education or work experience when it comes to hiring staff? #01:08:41-61#

**P:** Graduation. Those who work at the upper level do not need technical education because they usually don't have to work themselves. So, they don't need a lot of technical knowledge.

No one who has graduated will find that a technical and vocational training has ever taken or been interested in this. You won't get what you want.

At the mid-level, the experience people are available in the market. The experience people are seen more than TVET. They have more practical knowledge and are much more efficient. So everyone prefers to recruit the experienced guy.

For the lower level -Operator, someone who is totally fresh are recruited, but if there is anyone who have technical education, then he will get high preference for appointing. #01:10:43-62#

**I:** What if any of them have work experience? #01:10:46-63#

**P:** If there is work experience, then anyone who has work experience gets the opportunity first. And why would we prefer an applicant from TVET? There is an experienced person//, one is a fresh graduate and the other has a TVET certificate with graduation. Again one SSC pass and another SSC pass from other technical board then the boy with technical knowledge gets the preference because the boy can adapt to the situation very quickly because he knows how to operate the machine. So the boy gets a little preference. It depends on the upper selection body and how they recruit collectively. We always try to recruit the best.

(It's like we have a policy that we want to recruit in this way. It seems to me that he/she will be good for us. So this gambling is always working there. But when it comes to the free fair selection we try to recruit in an integrative way or select a better opportunity for us. If you have an applicant who has TVET with educational qualifications, it's a better opportunity for the Industry. But you will see that I disagree with many points in the questionnaire, the reason for this is that the questionnaire was straight forward whether you give more importance to the TVET or to the experience. There is nothing to emphasize like that. If you say that someone has two qualifications then we would prefer someone who has technical education besides educational qualifications because these people can adapt very quickly. There is nothing new to him, new but not too much.)  #01:12:28-64#

**I:** From the survey, we found that you had some problems in getting operators and technicians. And that has made some effects on the productivity of your production. So in that case, when you want to recruit workers, you do not get enough workers according to the criteria- how do you see and deal with this situation? #01:13:05-65#

**P:** All industries have some challenges. That could be infrastructural or related to manpower. So there are some problems with the manpower in Bangladesh. But at the same time, we are lucky enough that there is a lot of human resources in Bangladesh. I told you about our developed training systems (most of the pharmaceutical industry) - we do not assign anyone full-time for training. You had a question in that one place, how many people get above fifty percent of their time for training? Since most of our pharmaceuticals run on automatic machines and it's not like new people are being recruited across the industry. So when experienced and inexperienced people work together, those who are inexperienced they become skilled by on the job training. So we don't see this as too much of a challenge. Because we have experienced people, inexperience People are also available in the market. There is raw manpower that needs a little shape to make them prepare for work. Then we fill the rest of the deficit with on the job training.  #01:14:27-66#

**I:** Do you appoint unskilled employees? #01:14:31-67#

**P:** Yes, we also appoint unskilled employees. #01:14:33-68#

**I:** Do you appoint an employee who has no prior experience? #01:14:35-69#

**P:** Yes, we recruit fresher. It is not that we look for experienced staff. #01:14:45-70#

**I:** Are you actively trying to recruit females while recruiting at different levels in your organization? If that is, then how or why? #01:18:44-71#

**P:** Female staff is recruited. We do not do any kind of gender discrimination. We have no problem with the female and male worker working together. Female or male workers all come in the same way. We need workers here, no matter if it is a female or male. It is not something that a male worker would particularly need, not a female. Here 45 percent of the workers are female. So here we have no barriers in recruiting male or female. This is not to say that we have a special recruitment or HR policy when it comes to the hiring process. We welcome participants who can come to the interview who meet the eligibility criteria. We appoint someone who can compete and meet the eligibility criteria. #01:19:20-72#

**I:** We're going to the next section where we would like to know about the training system in your industry though you already said some things. Do you arrange any training for the employee on the outside or they only get on-the-job training? #01:19:37-73#

**P:** The training (that the employees are given) depends entirely on the job training. #01:19:38-74#

**I:** Does government incentives play a role in training your employees? Do you have anything called government incentives that are useful in your training? #01:21:39-75#

**P:** No, we don’t have any. We didn’t get anything like that.  #01:21:40-76#

**I:** What factors do you consider when deciding to train your staff (on-the-job training)? #01:21:54-77#

**P:** We provide training as needed. Since we hire new employees (Ice Cream Employees), as a result, we have to give them on-the-job training immediately. If we have any technological developments or changes, we must train them first. Secondly, QA provides some training on a regular basis, such as some change in manufacturing practice or some change in SOP. In the SOP's operating system, these trainings are done on a regular basis. We have a training calendar and follow it. The reason is we have to budget for training. #01:23:48-78#

**I:** Do you actively try to train female employees and if yes, what is the rationale for doing so? #01:23:59-79#

**P:** We have already said that we do not do anything different for the female employee because of her gender. (Along with this training we have training on Health and Safety issue here. We maintain a log-sheet record of this training so that we can know whether everyone gets those training or not. Health training includes ways to identify small diseases in your body. What hygiene maintenance does not cause such a disease is included in Health training. This training also teaches how to deal with chronic diseases in the body. We have a certified physician and doctor in our company. They conduct our health and safety training. We train them by making batches and teams. We also regularly arrange training on safety issues. These trainings are part of a regular training process alongside production-related jobs (On the Job Training). These are routine training like production-related training which is given at on-the-job training. So, our medical team doesn’t provide only health checkups but also provide this training to us. We have a health and safety department. Health and safety department trains our employees on a regular basis with the help of safety specialists regarding safety and environment issues.) We do not consider male and female differently in this training. All of them are employees. So, we treat them as employees; we don't consider their gender. There is no gender discrimination here. #01:25:32-80#

**I:** Now we would like to discuss on the issue of industrial growth and transformation. Now we would like to focus on what has changed in the organization over the past five years. Has there been a change in your technology or machinery during the 2014-2019 sessions? Has there been any change in the production of the product? Please describe the changes you have made to technology, as well as how your product has changed at this time. #01:26:07-81#

**P:** Technology is changing and improving every day. But from 2014 to 2019, our technology has not changed much. Many new systems have been developed for the production of drugs. (For example, we have a drug that is highly marketed named MAXPRO. Many people copy the drug but don’t use our name. We introduced a new technology through which we can verify our drugs via SMS. Each drug has an individual code; each of our MAXPRO has an individual code. That code contains a number. Each code has a serial number which is known as an authentic unique number. If you SMS the number you will get a return message which indicates that this drug is original. There is no possibility of duplication here. There have been some technical changes like this. By looking at this, many companies are now trying to introduce this technology. We are thinking whether a barcode can be used in the future or not. The barcode scanning system can be used with a barcode scanner. People will scan the barcode to check the authenticity of the drugs. This system is arranged so that a person does not buy or take duplicate medicine or drugs. By this technology, the buyer can avoid duplicate drugs. Now all these small tune-ups are happening out there). The packaging is the main place where technological change is coming to Bangladesh's pharmaceutical companies since 2014. Previously, there was manual packaging. Now most companies are slowly moving to auto packaging. Automated packaging is the process where a drug comes out of a packet form from being manufactured, without being touched. Automated packaging is the process where drugs are not touched from the very beginning of manufacturing to the end of the packaging. It's not that people's job scope is declining. You need employees who will run the machine. You need people to maintain the machines. But yes, the demand for technical people is slowly increasing rather than non-technical people. The more technology you use the more technical people you will need. In that case, technical education will be required. Now, one S.S.C passed an employee can work directly in the packaging belt, he does not need any technical experience. When we have to maintain the automated machine then we will need more technical persons. Not yet, but there are such people coming to our industry slowly. We have to introduce a few machines. We are slowly in the process of doing more in the future. Day by day the industry will move towards automated machines. It is also difficult to manage many people simultaneously with the costing of manpower. Because the cost of manpower is so high and it is difficult to manage many people at once. It is better for consumers to make medicines without human touch. But it doesn't matter. As a result, the job sector is diversifying as well as the diversity of the job sector is increasing. Gradually, skilled employees, skilled workers, technically skilled (technical hand) people will have more opportunities for employment than non-skilled employers. #01:29:12-82#

**I:** There are some changes in the production of products. What you were saying, are you making technological changes to protect the drugs that are being copied in the field? #01:29:24-83#

**P:** Yes. More auto machines are coming; auto machines are introduced heavily. #01:29:30-84#

**I:** But has there been a change in the production of the product? Has there been any new product in the last five years? #01:29:37-85#

**P:** Yes, there have been many changes. In 2014, no product from Bangladesh was registered in the foreign country. Now, some products of several companies of Bangladesh are registered in the outside market. Bangladesh receives a subsidiary from WHO as per the contract under TRIPS. According to the subsidiary, Bangladesh will be able to export the medicines to foreign countries. Earlier, there was no flagship that was made by Bangladesh. Now it is happening that Bangladesh is registering some products in their own name through various research and development. Now that the product is being registered as made by Bangladesh, some pharmaceutical drugs are being exported overseas, and it is a prestigious issue for our industry. Selling a drug which is made in Bangladesh in abroad is more prestigious than selling a shirt tagged as made in Bangladesh. Because, you make life-saving drugs, your country has the ability to produce life-saving drugs. Now, Bangladesh’s RENATA is registered in the UK, soon our company will be registered in Ireland. Fast Going Change is coming into our drug production. New formulations are coming to our country; Bangladeshi companies are now manipulating them. So from 2014 to 2019, these changes have taken in many places in the last five years. Like BEXIMCO has received the USA FDI approval, now they are exporting drugs in the USA by its own name. So, these types of changes are coming to the production of the drug. #01:31:50-86#

**I:** What were the internal or external factors/drivers of these changes in your industry? What were the most important internal and external drivers of these changes? #01:32:02-87#

**P**: It’s about policy. It’s all about policy. It's about the forecast. It was a management decision, rather than an external factor, that we wanted to take ourselves here after five years as there was an opportunity to come up with a target - it was an internal decision. As the big companies in the pharmaceutical industry are trying to go forward together, everyone is trying. So wherever you go, you will get this type of answer.  #01:32:45-88#

**I:** Was it easy or difficult to bring these changes in your industry? What made the introduction of these changes easier or more difficult? #01:32:53-89#

**P:** This is not like that these changes have been done; it’s running. It’s a continuous process. It’s just the beginning. So it's definitely a tough job because you have to sell your products in the existing market. #01:33:03-90#

**I:** You were saying, this process is going hard. So what are the factors that make this process difficult? #01:34:00-91#

**P:** The new product is an SOP (Standard operation procedure) challenge. At first, developing a product then registering that product in an external market - all of these tasks are difficult. Plus we have some problems with the financial terms. There are some rules and restrictions from Bangladesh Bank that you can’t buy something from outside arbitrarily or if you want to arrange a training program for employees then making payment is a problem for us. For example, you would like to train someone in CMS for technical education. There is a system for training that you have to pay in advance. After paying, they will give you a receipt; they won’t give you any voucher before that. You cannot make LC to pay for training money; it’s not the LC (Letter of Credit). It's not a machine. It takes a lot of money to go for training at CMS. For training you may be able to pay a little money with a card but how do you pay so much money with a card? When we apply to the Bangladesh Bank, they don’t do anything; they say that we do not know anything. So how do you develop a worker's skills! So how do you develop a Skilled Worker! Yes, there are some backdoors; many people take a lot of money out of Bangladesh by talking about these things, it happens, and many people do like this. But what happens to those who don't do this kind irregularity? These are the problems. It can be seen that someone is making some portion of the payments and some are making the due portion of the payments - this is how we have to send employees for training. The challenges are there. Research and Development is a big budget issue. There isn’t any related skill developer available in Bangladesh. So what happens one worker learns everything from on-the-job training (domestic) but he has to receive training for gaining further knowledge from outside the country. In our case, these are the challenges. But yes, there are problems everywhere as well as in every industry, there will be some challenges definitely. It has to be overcome. It's a challenging factor that this is a long term issue. Huge investment and it’s not about getting results overnight through investment. Everyone has to be patient. It can be seen that many companies are investing heavily and then sitting quietly for a year or two or four years. They invest a huge amount of money repeatedly every year but not sure whether there will be any result. From a distance, it looks like that might happen. But it's not guaranteed that will happen. But there remaining these challenges, investment was a challenge there, however everyone has to face accountability. The board also asks what is the result, what are the outcomes and we have to answer those. The internal challenges were the core challenges. Financial investment, whether your strategy was right or not were the main challenges. The strategic challenges as well as the financial challenges were the main challenges. #01:36:42-92#

**I:** Do you feel that your staff's skills are needed because of the changes you are undergoing? Does it have any impact on the skills requirements of the worker? Please describe how far these changes had an impact on your skill needs. #01:36:56-93#

**P:** Basically, you don't need blue-collar employees for developing the Pharmaceutical Industry. You need white-collar employees for the development in the sector. For the white collars, the Knowledge in the respective wing is more needed than the technical education. Alongside, in the case of skill development, he needs more training after the on-the-job training. It can be seen that our country hasn’t the opportunity as well as the trainer to train the employees to cope with the changes that are happening to this industrial sector. So, you have to send them away, the fast-growing countries those who are in the leading positions in the pharmaceutical industry, to train them. Like, send them to Japan or any other European countries. You have to train the staff like this. Yes, there is Singapore at the moment; there are many training organized in Singapore. Employees can be trained in Singapore. Many organizations organize this nowadays. It would not be beneficial to send employees to Malaysia for training; Malaysia is far behind us in pharmaceuticals. Sending employees to China will not be beneficial. You have to send employees to countries that are ahead of us in pharmaceuticals like India. India is far ahead in the pharmaceutical industry than Bangladesh. You can send there (India). It is actually very difficult to arrange these trainings in our country. #01:38:14-94#

**I:** With these changes, how TVET qualified staff at different levels such as mid-level, lower level, a higher level can adapt to the changes compared to others? #01:38:49-95#

**P:** If you look at the lower level and the mid-level, then those who have vocational training along with job experience can adapt very quickly compared to others (those who are inexperienced or not having TVET training). #01:39:04-96#

**I:** Why did you think so? #01:39:05-97#

**P:** Because studying in Technical and Vocational Education, they get some technical knowledge. If you come to the upper level, there is really no need for that kind of technical education at the upper level because in this case, those who work at the low-level, those who work at the mid-level have to work on field. The technical education is more important for them. So, in the pharmaceutical industry, for the machine operators and maintenance technicians - they (HR) expect more about technical education in these two places. #01:40:02-98#

**I:** Do these TVET employees play a significant role in the introduction of new technology? Is there a role here at the lower and mid-level employees with TVET qualifications? #01:40:28-99#

**P:** There is no chance of introducing new technology here really. This industry does not allow any experiment. So there is absolutely no opportunity to experiment here. Just do and don'ts. Lower-level employees have little to do with the introduction of new technology. I've said that these changes actually come from management. #01:41:01-100#

**I:** Can they who have TVET qualifications be useful with these changes? Do those with TVET qualifications play a role in this change? #01:41:13-101#

**P:** Not like that. #01:41:15-102#

**I:** Here's a question, can you name a TVET program that plays a particularly helpful role in this? #01:41:34-103#

**P:** No. #01:41:35-104#

**I:** So we're going to move on to the next section that is the pattern of the changes in work organization. When this change is happening, has this change impacted on work organization like, the worker who worked in the production, worked at the maintenance site due to some changes in technology whether they are shifted to other tasks or not? #01:42:04-105#

**P:** No. #01:42:04-106#

**I:** Does it happen at any level? #01:42:08-107#

**P:** No. It doesn't happen at any level. #01:42:09-108#

**I:** Isn’t it needed? #01:42:15-109#

**P:** Change comes from a high level and then it goes to a low level. In the end, it remains the same. #01:42:23-110#

**I:** You were saying that you used to take decision on to whom the new (upcoming) machine would be handover before the machine arrive. #01:42:32-111#

**P:** Yes. So, change doesn't come that way. Because when the operation goes on in your production, the operation will be the same. The main change comes in the formulation, and after the change in formulation, the rest of the process changes. So, actually there is no change in that way. #01:42:49-112#

**I:** Whatever the change is, does this change have any impact on an employee's skills or improved performance? #01:43:01-113#

**P:** It certainly has an impact on skills because when you're working with a particular machine you're working in one way, but when you are running a sophisticated machine compared to that, you will definitely have some skill development. Definitely, it increases people’s knowledge and also their job knowledge. So, of course, it has an impact on employee’s skills or performance. #01:43:19-114#

**I:** What effect does this change have on product quality and accuracy?  #01:43:24-115#

**P:** Yes. In Bangladesh, the way the guidelines for the drug industry are getting very tight day-to-day, resulted in everyone mostly concentrated in one place (quality?). In many cases they (Drug Administration) ask to follow new tools, and everyone is following it. In that case, definitely there has been a change. #01:43:40-116#

**I:** In that case, does the production increase in a short time? #01:43:43-117#

**P:** Humans really don't have much to do with that. In the case of pharmaceutical companies, production is possible in a short time. It depends on the machine that how fast your machine is. #01:44:04-118#

**I:** Now coming to the field of growth, how is the development and growth of this organization happening or not? Whatever it maybe - tell me about it and if so, what is the reason and if not, what is the reason? #01:49:26-119#

**P:** Definitely there has been growth in the pharmaceutical industry in Bangladesh. When our current CEO (Chief Executive Officer) took over the company, it's about a Hundred Cores. The company is now worth over twenty billion. So, looking at the financial side, it is understood that growth has taken place. According to the stock market, it is above one billion US dollars. So definitely there is nothing to deny that it has grown. In Bangladesh, Pharmaceutical Industries is now trying to reach a certain level. As you know, the pharmaceutical industry sector in Bangladesh itself can meet the domestic demand of medicine in Bangladesh. There are some patterns that are not available in Bangladesh as per WHO rules, those patterns only imported from abroad. Otherwise, the remaining medicines are manufactured in Bangladesh and Bangladesh now exports medicines abroad after meeting its domestic needs. So, you can say, after garments industry, this (Pharmaceuticals) sector is the most prospective, promising sector in Bangladesh. #01:50:31-120#

**I:** But what are the reasons behind this growth? #01:50:34-121#

**P:** There is a drug industrial policy behind this growth. Because of this Drug Industrial policy there are some (Trips?) under which WHO has provided opportunity to the developing countries that those developing countries will be given some free pattern of medicines through WHO so that they can meet their domestic demand as it is a basic need. That was the greatest opportunity for the pharmaceutical industry. At that time, those who were able to grab this opportunity developed the pharmaceutical industry. But I would say that the growth of the pharmaceutical industry in Bangladesh has occurred because of the personal decision taken by some front line industrialists. They took the challenge at that time. They tried to produce quality medicine at a low cost at that time. According to the previous rules and regulations of the drug authority of Bangladesh, there was an opportunity to sell less quality drugs. The pharmaceutical industry of Bangladesh has been going so far today due to the personal decisions of some front line individuals industrialists. They decided at that time that we would not produce less medicine, even if there is a chance. We want to produce world quality medicines and provide with those medicines to our people. It's like we don't have to provide quality medicine with loss. Our profit margin may be lower, but we want to do it in this way. The decisions that some of those industrialists made has brought the pharmaceutical industry to this position where it is now. And the medicines of Bangladesh have a good reputation and quality. Our pharmaceutical industry has definitely grown. I wouldn't say it's a revolution, but it's promising. #01:53:05-122#

**I:** In that case, have any of the internal factors affected this growth? #01:53:11-123#

**P:** Internally, our biggest challenge is infrastructural support. The industries do need uninterrupted electricity supply, uninterrupted cash supply. So in that case, there is a challenge. API (Active Pharmaceutical Ingredients), raw materials for producing medicines is not produced in Bangladesh. It has to be imported. If the API had been in Bangladesh it would have been easier and easily available. #01:53:41-124#

**I:** If you had API then growth would have been even greater. But what is the reason behind the growth that is happening? #01:53:49-125#

**P:** Behind that, I am saying that the pharmaceutical industry of Bangladesh has gone so far today, based on the three things that the drug policy, the work of the frontline individual industrialists and the opportunity that the WHO provided to Bangladesh. So except for those facts, I can't explain. Due to an ethical decision of that time, our industry (Pharmaceutical Industry) has come to such a good position today. #01:54:27-126#

**I:** Another question, is technology impacting growth? If so then how? #01:55:46-127#

**P:** Yes, Definitely. Production is growing fast; production is increasing due to technological development. So, it definitely has an effect on growth. Although I haven't seen but I've heard that previously the tablets were made by hand-drawn machines. In that case, how many tablets could be made in a day? So production was scarce compared to demand. In that case, as production was low, the business would be less. Due to technological development, communication has become faster. We use apps. When we download our apps to find out what I need in the field, it hits the central apps. From there we can find out if I need this and that or I have this product short in the market. What is happening here is that previously we could give a thousand tablets or 2000 a day, now we are producing one lac tablets in an hour. Our growth has been accelerated due to technological improvements. Besides, decision making has become easier due to technology. Our company runs by Oracle Systems (Centralized Software System). So anyone who has the authority to see what is going on at some point from there can see it according. He can see the full result if he has the authority. He can see on what he has a shortage and what he should make fast. It’s not just a production technology; it’s an overall technology. Overall, the benefits of this technology are increasing. Definitely, our production has been developed due to technology. #01:57:20-128#

**I:** While growth is increasing, productivity has increased as well, isn't it? That is, with the increase in the productivity of the industry there is growth as well or with the rise in growth there is an increase in productivity as well, is it running in parallel? Did growth go hand in hand with an increase in the productivity of your company? #01:57:39-129#

**P:** Yes, it goes parallel but it is also true when you are going to introduce new technologies then there is a matter of investment. So there is investment. If you want to buy a subsidiary machine, the price of your machine will increase. In these cases, there is a policy in Bangladesh that you cannot increase the price of the drug as your wish. According to the Bangladesh Task Force, there is pricing for drugs that you cannot sell at a higher price than that. The maximum price is fixed for each drug. The maximum price for this product is fixed for all companies. So, if you want to innovate and take it to an upper level then the cost will increase as well. The highest price is fixed so you cannot sell the drug at a price higher than that price. So, that’s the situation. However, overall, obviously growth increases with productivity. The productivity of the manufacturing company increases along with the production capacity of the companies. At the same time, if the sell clicks, the growth will increase. But at a certain level if you talk about quality with growth and productivity then we are trying our level best within the given budget. If you want to develop more, the price of your product will increase. As far as I know, the price of drugs sold in the market of Bangladesh is the lowest in the world. Drugs are not sold so cheaply anywhere in the world, not even in India. In India, however, the price of drugs is much higher than ours. The price of medicines is the lowest in Bangladesh. PARACETAMOL is available for only one buck; you will not find it anywhere else on earth. Without PARACETAMOL, you get nothing in Bangladesh with one buck. #01:59:30-130#

**I:** Now the question is how the national industrial policy or drug policy has impacted the growth of the industry (Though you said it earlier). #02:00:06-131#

**P:** Definitely, it has. When there is a policy, it has some effect. The drug policy that we have now was given in 1984 or 1986. It opened a road to industrialization at that time. The pharmaceutical industry did not get the kind of opportunity the garment industry had. We've got some incentives, priority-based help. That was positive definitely. Due to that drug policy, at least a drug control body has been created in Bangladesh. There is a drug control center in Bangladesh because of this policy. There is a body for the quality control of drugs in Bangladesh that they at least check the minimum standard of the drugs. #02:01:04-132#

**I:** We need TVET in the industry. In that case, is TVET strategy aligned with the industrial policy or drug policy? Is there any difference? #02:01:25-133#

**P:** I have no clear idea. BAPI (Bangladesh Association of Pharmaceutical Industries) can say it better. #02:01:30-134#

**I:** In terms of the levels we've talked about - which particular program seems more valuable to your organization regarding Technical and Vocational education? #02:01:57-135#

**P**: I would say technician in that case. #02:02:00-136#

**I:** You think the technician is far more important to the TVET program. Is there a specific reason for that? #02:02:10-137#

**P:** Technicians have to do more on-hand jobs. The TVET program is important to the technicians we have at the mid-level; it will be helpful for us. #02:02:24-138#

**I:** But don’t you train technicians differently? Job on hand only? #02:02:41-139#

**P:** On-hand job. #02:02:42-140#

**I:** Do you have any contact with any organization that trains your staff or officially comes from outside to your organization to train your staff? #02:02:57-141#

**P:** We have not needed such training yet. As I said from the beginning, the experienced team that we already have normally trained our staff on the job. They are very much experienced. Like something that is not manufactured in Bangladesh, our team has already made those types of machines. So they are that kind of experienced, skilled. So we haven’t really needed that. Hopefully, you will soon find out that (Bangladesh buys those from abroad) we have made two machines here that none other than German can manufacture. We've got that machine built here. We will disclose it very soon. Our team is an experienced, skilled team at that level. So, actually, we haven’t needed such training. We have contacts with technical training centers normally. We sometimes hire employees and take loads from them. In the case of training, they will supply employee and it is said to them. We haven't actually done that kind of training because we don't need people like that. #02:04:07-142#