

NTNU, 2013

# Process Report – Biofuels, a good solution?

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EIT – TKP 4850

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## **Preface**

The members of the Bond breakers team are grateful for the patience and guidance offered by the learning assistants Matias Romundset and Joachim Sitje together with Professor Edd Blekkan. The team gradually evolved from an individualistic approach of handling team activities to an integrated approach. We believe the key lay in the feedback and encouragement that was given to the team.

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**HAFSA CHOUDHURY**

**KARL MAGNUS Åbø**

**MILLY KURE**

**RENBIN ZHOU**

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## **1. INTRODUCTION**

The process report will show the diverse personalities of the individuals that made up the team, and how the team progressed in handling the group project. The diversity of the team spans not only from personalities, but from study disciplines as well. The report will highlight some of these situations that helped shape the dynamics of the team. The use of outside intervention (learning assistants) where the team thought it was necessary will also be described. The report will conclude with each individual describing their personal developments and benefits which they believe to have gained from working in such a diverse group.

## 2. MEMBER INTRODUCTION

Each team member will be introduced by describing, though not limited to, their study disciplines, cultural background and personal interests. This aims to show the diversity of individuals that existed in the group. A general brief description that is based on the 'Roles' exercise that was developed by Are Holen will be included. This exercise was given to the village by the learning assistants during one of the EIT sessions. Team members are introduced alphabetically.

**Binod Gautam Sunar** is a 2 year international master student from Nepal. His study discipline is Biotechnology. He was raised in a community that is friendly, cooperative and respectful of other people's views and ideas. Regarding varying cultures, he believes that different cultures should not be prevent people from working together and points out that honesty in all communities is important. Coming to Norway was his first experience outside his home country and the difference in culture was distinct to him. He says people are not as open and friendly in Norway and as a result he finds it difficult to fit in. Binod says he is lazy and prefers to work alone so he found this course to be a challenge. Despite his laziness, the team found he always did the tasks he was given, albeit rather quietly.

**Hafsa Choudhury** was born in Bangladesh to a middle class family. She is an international master's student in mathematics. She explains that in her culture, mothers are responsible for looking after the family and trying to educate their children while the fathers earn money, making her mother her first teacher. Because of this, she says most women in her country are dependent on their husbands and they usually suffer when their husbands die or if they become separated though separation is very rare. It pleases her that the situation is slowly changing since some women have now started getting involved with work, even though it has to be less demanding so they can always have time for their families. Hafsa says she has always been good in Mathematics and was inspired by a Russian female Mathematician, Sofia Vasilyevna Kovalevskaya. Sofia Vasilyevna Kovalevskaya made great contributions to the theory of differential equations as well as advocated for women's rights in the 19<sup>th</sup> century (Riddle, 2013). The team found Hafsa to be quiet and timid, lacking in boldness but takes direction well once given a task.

**Karl Magnus Åbø** is the groups resident Norwegian, studying for a two year chemical engineering degree. Being from Norway in Norwegian university means that he has a lot of basic assumptions about how work is done in Norway and this may cause problems in the friction of multidisciplinary and multicultural work. Before the current degree he studied at NTNU right after high school, but did not do

terribly well and ended up in a bachelor program at Sør-Trøndelag University College before resuming an NTNU degree. During his education he learned a lot about biofuels, especially with regards to lignocellulosic biomass. He was inspired to become an engineer by his family. When discussing, he can either be very quiet or loud, depending on the other team members. He prefers to do a lot of work in short bursts, leading to unpredictable behaviour and a tendency for a lot of the work to be done late in the schedule. The quality of work to effort invested is usually rather good though. A lot of his work is done intuitively and the team often had problems following. Another problem is his need to narrow down options quickly, which means that important matters may easily be ignored.

**Milly Kure** is an international master's student from Uganda studying Chemical engineering. She says Uganda has over 50 tribes and almost all of them have their own tribal languages. This makes English a popular language in Uganda because it is the easiest way to communicate across the tribes. English is also the official language and language of education. As a result, she speaks English very well. Milly was raised in a liberal family that was not tied down to cultural activities. She was taught by her father to always think beyond the cultural and country boundaries. She says she is usually quiet and reserved but very observant to what is going on around her. She picked this habit up from her previous job as a sales engineer where they were taught to be aware of their client's behaviours. The team found her to be sociable with leadership skills but said she did not always use her leadership skills when the team expected her to.

**Renbin Zhou** is an international master's student from China studying Marine Coastal development. His study background is aquaculture. He came to study in Norway because the country is renowned for its Salmon. He says he is not an out-going person and he finds it hard to communicate with people. This is something he wants to improve on. He spends most of his time alone usually reading, playing computer games and watching movies. The team found him to be very quiet and was mostly silent unless he was engaged with directly.

**Umair Ashraf** is from Pakistan and is an international master's student studying electrical power engineering. He says he has been greatly impressed by the punctuality that is exhibited by Europeans and this is a habit he is learning to pick. Umair is interested in renewable energy sources because he would like to make a business out of producing electricity cheaply. He explains that his country is well placed geographically because it shares its border with emerging powers like China, Iran and India. His country has different cultures and this has taught him to interact with people from varying cultures. True to this, the team found him to be quite social and usually occupied the team's attention.

### **3. SPECIAL SITUATIONS**

The team has chosen four different situations that were agreed to have helped shape the dynamics of the team and that best describe the major challenges that the team faced. The events in each situation will be described to show the challenges encountered. A brief theory based on the EIT Kompendium 2013 will be included to help explain the challenges faced. This will be followed by actions taken by the team to improve the situation and each team member's reflection.

#### **3.1 CHOOSING A GROUP PROJECT SITUATION**

The process in choosing the project topic was tedious. Tedious as used here means it was long, monotonous and tiresome. This was aided by the fact that the atmosphere in the group was mostly quiet. Team members were reserved and contributions to possible project topics were almost non-existent. Karl Magnus was the exception being the only outspoken person in the team even when the group had just been formed. He tried to engage everyone in the group by asking questions related to study disciplines. He said he was trying to find out what the team members actually knew about the village.

Hafsa, a mathematician, said she did not know much about the topic. Umair, studying electrical engineering also said he did not know anything about the village. Milly asked why they had chosen the village. Hafsa said she thought it would be about Biogas which she thought she could contribute to since biogas gas production and use is extensive in her home country. Umair said he also expected the village to concentrate on biogas with which he could easily incorporate his electrical study discipline. He went ahead and suggested that Karl Magnus and Milly, who are both studying chemical engineering, should try and get a project topic. His reason was that the two obviously had more knowledge regarding the village compared to the rest of the team members. Milly responded to this by saying that everyone in the team needed to acquire some understand regarding the village because the project required everyone to participate.

The first project idea came from Karl Magnus, regarding how economic and political incentives affected biofuel production and implementation. The team did not openly agree or disagree with his suggestion but was aloof. Aloof, typically means to appear to be uninterested.

No-one else in the team had offered any more suggestions at the time and this allowed Karl Magnus to keep pushing for his idea as he tried to explain it further. Milly and Umair had started to agree to his idea but it still did not generate any reaction from the rest of the team members.

Since the class was coming to an end, Milly suggested to the team that everyone should put aside some time to educate themselves about the village topic and everyone should present at least one possible project topic in the next EIT class. Karl Magnus advised the team that a good starting point for written material would be Wikipedia. He went ahead and opened a group folder on itslearning where he posted some related notes.

In the following EIT class, all team members were asked to present their project ideas. Only Milly, Binod and Karl Magnus had new project ideas. Karl Magnus said he was not as enthusiastic about his previous idea anymore because it was not really technical and more of a pet interest of his. He added that supporting literature for that project would not be easy to find, especially because it would be highly politicized. However, we seemed to have created a new problem; how to choose one project topic from the multitude of project topic ideas that had been presented. Binod suggested that we should vote and see which topic was more popular.

At this point, Karl Magnus highlighted a key fact that we had all ignored. He reminded us that the project topic required all the team members to apply their education disciplines or competence. Since this had been ignored while coming up with the already presented project ideas, the team had to start the whole process gain and look for a new project.

## **THEORY**

The EIT compendium, 2013 includes some theoretical information written by Schwarz about what makes work groups effective. He points out that work groups can result in different experiences in most people. Some members may welcome the group and work together effectively while some may not welcome the group and lead to frustration. Factors that may lead to a group's ineffectiveness may include not having the required expertise to work on the task and lack of motivation to perform the task.



Schwarz defines a motivating task as one that;

- Makes use of the skills of the group members
- Has a clear and meaningful goal
- Has an impact on society or organizations

From Schwarz 9 rules for effective groups, rule number two says each team member must share all relevant information that he or she has, if it will affect the decision that has to be made. He also mentions that a better way of obtaining the required information in a group is to start with finding out people's interests instead of their positions. In the case where the required expertise is lacking, the group has to be modelled in such a way that members can identify their problems in the team and then find a solution to change and improve the situation (Schwarz, 2002) (NTNU, 2013).

## **ACTION**

Milly suggested to the group that each team member should look at the projects that had been proposed and then see how they can each contribute to them. She explained that this would help the team narrow down on the number of proposed projects. This did not seem to help the situation so Karl Magnus continued to find out what the team member's interests were and what they knew.

The first breakthrough came when Karl Magnus found out that Renbins master thesis involved macro algae. The second breakthrough came when Umair said he had done his bachelors project on market analysis of photovoltaic cells. Karl Magnus explained that there was a project that could involve the whole team and he proceeded to describe the project in detail. It would be a project about the economics of using macro algae for ethanol production in Norway. This could use Renbins macro algae competence and Umair business background.

Acceptance to this new project idea was obvious from the excitement that was generated in the team and the obvious involvement of all the team members in the subsequent discussions about what the goals of the project should be. Umair said he was happy that there was a Norwegian in the group because it would be easier to get some local information related to the topic. Hafsa said she now felt better because we now had something to work on.

## REFLECTION

**Binod** says he found this task very difficult but he thought the team should work on a project that was technical. He realized that this was challenged by the diverse study disciplines. He thinks that is why Karl Magnus tried to drive the whole group towards a project that involved economic analysis. Binod says he understood that the group's interest was more important than his personal interest which is why he agreed to Karl Magnus' idea.

**Hafsa** says she was confused because she had little knowledge related to the village. She had agreed to one of Milly's project suggestions because she thought it would be a good idea to work on something that would be beneficial to a developing country but this could not include everyone's participation. She said when Karl Magnus told her that she can contribute to statistical analyses, she realised how her lack of knowledge on the village would not be so much of a barrier.

**Karl Magnus** knew choosing a project might be difficult, as many members of the group seemed unfamiliar with biofuels production and it was rather hard to gauge their competence in different matters. This led to some frustration, and as the group chatted on in a standstill, he tried to quickly identify possible directions and tried to guide the group. He felt this was important because without a good project, the group would have problem getting a unified vision and goal. He was somewhat dismissive of the ideas of the others, feeling they could be hard to work on or implement. Once he had some idea of the others' competence, he found a project as close as possible to their competence and tried to make a good case. He was pleased that it seemed to find some traction.

**Milly** says it crossed her mind that the reason there was hardly any response from most of the team members to the first idea that Karl Magnus presented was that they did not clearly understand it. She says it took her awhile to understand it as well but she could not explain it to the rest of the team members since she was still grasping the idea and she thought she would not be able to explain it with the same meaning that was intended. She says she had some project ideas at the time and she was disappointed with herself that she did not voice them out because she downplayed them thinking they were not good enough. She felt bad about it because the team members were looking up to Karl Magnus and her, and yet only Karl Magnus had managed to come up with an idea.

**Renbin** says his contribution to choosing a project topic was very little because he had very limited knowledge regarding the village topic. He knows how to cultivate different fish, shellfish or algae, but he had no idea about the biofuel. He says when the group was discussing about the topic, he could not come up with any suggestions and he could not agree or disagree with the ideas that were raised. He thought he should just keep quiet during the discussion. He says he was happy when the group decided to work on a topic related to seaweed and he was told that he could use his knowledge on the topic to help with the team project.

**Umair** says his grip on the topic was very little and he felt embarrassed about that. He wanted to participate more in the project work and his intentions were to include or create some part related to Electrical in whatever project topic was mentioned. He says, as the group progressed in the discussion of how to include everyone's study discipline into one project, he realized he could help to come up with a business plan. He was satisfied that he that he would still be able to contribute to the group project with this knowledge.

## **3.2 DISCUSSION OF THE COOPERATION AGREEMENT**

### **SITUATION**

Writing the cooperation agreement was the first major task that the group was given and it was mostly dominated by Karl Magnus. Karl Magnus started by trying to get suggestions from the team members but the team's reaction in offering suggestions was slow. A few suggestions came from Umair and Milly but the rest of the team hardly responded with any suggestions, reactions or feedback. Karl Magnus then got his laptop and started working on it while ignoring the team. Milly was still trying to get the rest of the team to come up with contributions when one of the learning assistants passed by the group. Karl Magnus then showed him what he had been working on from his laptop. That was when the team realized he had been writing down the cooperation agreement. The learning assistant told him that the agreement seemed fine but pointed out that maybe the points were mostly to his (Karl Magnus) preference. Karl Magnus said the team was slow and that he was impatient which is why he took it upon himself to start writing down the agreement. The learning assistant then encouraged us to work as a team.

He read out the points he had written one at a time and the team discussed on whether it should be retained, removed or modified. The discussion was still mostly between Karl Magnus, Umair and Milly. Binod would mention one or two points and then keep quiet again. The team spent a lot of time deciding on whether the team should have a team leader or not. A general vote was done and four people out of the six agreed that the team should have the leader. Karl Magnus and Milly were the two that opposed the idea. Milly asked the team who they thought should be the team leader, and the response was that either Karl Magnus or Milly because they knew about the village topic. Karl Magnus said he did not want to be the leader and he preferred an ad-hoc system where the team would deal with any specific decisions together and as a whole. Milly said she did not want to be a leader because she did not like the idea of being responsible for people. Umair then said the leader just needs to give guidance since the village topic was a new field to a majority of the team members. The team failed to agree on this issue but agreed that the ad-hoc system would be given a chance and the cooperation agreement could be revised at a later date if it did not work out. The team however agreed that a secretary was needed for the daily tasks. This role was given to Milly.

The team could also not come up with consequences for not following the rules put up in the cooperation agreement. Milly suggested the person should buy a liter of Coke for the team. Karl Magnus suggested that the team should stare angrily at the person for 30 seconds. Karl Magnus preferred to write his suggestion in the cooperation agreement. No one in the team objected to this. When he finished editing the cooperation agreement, he passed his laptop around for people to read and approve before sending it. There was a general silence from the team after reading out the agreement before Umair asked if it was ok to send the report the way it was written. Karl Magnus said that that was the best he could do and if someone wanted to change it then someone else should write it. No one in the team offered to re-edit the agreement.

Quoting Professor Edd Blekkans reaction to the cooperation agreement report that had been submitted, "This is clearly an application for criticism, the agreement is written in a provocative tone, meant as a protest towards the concept? Try to rewrite it and think about it as a tool for your cooperation."

To the suggestion that the people not conforming should be stared at angrily, the professor asked "What does not conforming mean? Who decides?" He pointed out that the agreement was to help the team and we needed to be clear when coming up with consequences for not adhering to the rules. The team was given an extra week to send a revised cooperation agreement.

## **THEORY**

From rule number six of Schwarz ground rules for effective groups, Schwarz encourages the use of advocacy and inquiry. This is done by expressing your view, reasoning intent and asking the other group members to give their comments and opinions. This helps to create a focused conversation and prevent monologues. The key is inviting the other team members to comment and the comment has to address the view that was given. However not all inquiry is genuine. Genuine inquiry has learning as the outcome. Rhetorical inquiry has the intent of indirectly expressing your view.

The importance of having a consensus decision making process is also stressed. He defines this process as one that involves all the team members because it has an impact on how well the decision is accepted. It allows the team members to see the decision as their own and the members would support and implement the decision easily and effectively (Schwarz, 2002) (NTNU, 2013).

## **ACTION**

Karl Magnus took the first action by re-writing the report with an appropriate tone. He did this during the course of the week and then he uploaded the revised agreement onto the group's folder on itslearning. He then sent emails to all team members asking them to read it through and provide any suggestions on how to further improve it. However he did not get a response from any of the team members until the following EIT class, which was also the deadline for submitting the revised agreement.

When the team met in the next EIT class, everyone agreed that the revising the cooperation agreement was to be a priority. Umair said the agreement should be submitted before lunch break. Karl Magnus expressed his dissatisfaction that no one had bothered to check out the revised document that he had posted on its learning. Milly, who had now picked up the role of the team secretary, reminded the team that its learning was going to be the teams major platform for communication and urged everyone to check it regularly and respond where required. Karl Magnus continued and said that silence from anyone while reviewing the cooperation agreement would be taken as a 'yes' so it was imperative that everyone came forward with their suggestions and opinions.

Hafsa, who was seated next to Milly, told Milly that there were areas we could re-edit because the tone was still bad. Milly mentioned this to the team. Umair also suggested a few more phrases in the agreement that could be re-written. The final revised agreement was then passed around for final approval from all the team members before submission.

## **REFLECTION**

**Binod** says he thought Karl Magnus tried to impose his ideas in the agreement and yet the cooperation agreement should address every member in the group to allow for minimal disputes. To keep the group together, he says strong faith in each other must work together with the cooperation agreement. He realized this when the report was rejected by Professor because of the sarcastic tone it had. He reflects that the final report that was sent should have been well edited for the benefit of the team.

**Hafsa** said as much as she agreed with the first report that was sent, she changed her mind when she thought it through after reaching home. She says she found the report to be funny and interesting at the same time but not serious enough to be sent as a serious document.

**Karl Magnus** was the one writing the agreement and though it was written in a sarcastic tone, he thought that it still reflected what he had learned about working in a team and it was written with the help of the theory in the EIT compendium. The main reasons he wrote it this way was his frustration with the team being unable to work quickly enough and the professor telling the village how much freedom we had. There are always limits, and the cooperation agreement was written to test where those limits were. By provoking a response, a much better agreement could be written based on the feedback. In the end the professor took it in good spirit, much to his relief, and he rewrote the agreement to an acceptable standard. The team did not know this at a time and therefore became somewhat concerned. In the end the cooperation agreement was just something that needed to be done before real work could start and in hindsight it did not include the others properly because he was eager to start real work and believed the group stuff was mostly an obstacle.

**Milly** says she realized the cooperation agreement had been written inappropriately considering the type of document that it was and she considered it as a failure both for herself and the team. She says she could not blame anyone but the whole team because the team had collectively approved the document as it was. She said she realized the importance of being pen with her opinions and acting on them where necessary.

**Renbin** says he was not sure about what rules to put in the cooperation agreement which is why he was silent. He says he had an idea that could be included in the agreement but the team members were speaking so fast and he did not want to interrupt. Regarding the report that was sent, he realized that the report had a few unsuitable things but since the team had agreed to it he also agreed that it was ok.

**Umair** says he initially thought that the cooperation agreement was just a formality and anyone could write anything that they wanted. He decided to leave the report the way Karl Magnus had done it because he did not know how important the agreement was. But when he read the email from the professor that was criticizing the report, he understood the professors reasoning for why the team needed to take the cooperation agreement seriously.

### **3.3 THE TEAM REACTS TO RENBINS RESERVED PRESENCE**

#### **SITUATION**

Renbin was very quiet and reserved during the meetings, leading to questions about his contribution. The spark igniting a reaction was an email that Renbin sent to the team on 13/03/2013 explaining that he would not be present for the EIT that week because he was still working on his master thesis. The previous week, he had also given the team his apologies and said he could only be available for half the day since he had to work on his master thesis. Before that, on 20/02/2013, he had reported to be sick and could not attend class.

Milly started by saying she felt like Renbin was not so concerned about the team and the project. Umair said Renbin was too quiet regarding the project and yet he was expected to be more active since the project was related to his master thesis. Karl Magnus said he had hoped the project would help make him participate more in the project discussions.

Karl Magnus then reminded the team of a previous EIT class when Renbin had mentioned that he had a problem with English and he was struggling to listen and catch up with the discussions. Umair said that the team had listened to him and had agreed that they would all try and talk a little slower, but this still had not helped matters. Milly said that she had tried to involve him in all the team discussions by frequently asking him for his opinions but she wished he could take up the initiative himself. Karl Magnus suggested that it could be possible that the team had unintentionally segregated him. He explained that it was possible that as the team got to know each other better and started talking to each other more easily, the communication became faster and possibly Renbin felt left out.

Binod then asked why Renbin could not schedule his master thesis programme on a different day. Karl Magnus suggested that the team find out if the arrangement was made by Renbin himself or his professor. Umair suggested that the team should talk to Renbin in the next EIT class. Hafsa asked how the team was going to do this. Karl Magnus said he thought it would be better if Milly talked to him about it. Fortunately, one of the learning assistants passed by our group and said if we need any help we could ask them. The group conferred and agreed that it would be better to involve the learning assistants in this matter. On the same day, the village had been given an exercise called 'roles' by the learning assistants. Binod said he wished Renbin had been there because he had found the exercise was a great opportunity for us to discuss each other's characters and personalities. He said everyone was open to other people's opinions of them.

## **THEORY**

From Schwarz ground rule number 8 for effective team work, Schwarz talks about discussing un-discussable issues. He goes ahead to discuss that the un-discussable issues are issues that the group is not able to discuss openly either out of embarrassment or fear of negative consequences and yet it has an effect on the group's activity. He points out that this is not an easy ground rule because it has an emotional link and people usually get defensive and he encourages group members to start by sharing their feelings about raising the un-discussable issue rather than concentrating on the specific problem. When the person is sure that the issue will be more willingly accepted after voicing out his fears, he then may openly talk about the un-discussable issue.

This is in line with clear goals and effective communication. For a group to function effectively, it must have clear goals that are well understood by all the group members. This helps each member to find their best way of helping the group progress towards achieving the goal. Effective communication helps to make sure that the person receiving the information understands it the same way that the person giving the information means it to. To ensure that the message has been understood as it was intended, the receiver is encouraged to raise any concerns that he or she might have. It is also important to avoid one person dominating conversation in a group because it can hinder other members from expressing their views (Schwarz, 2002) (NTNU, 2013).



## **ACTION**

During the next EIT class, Milly explained to Renbin that the team was disappointed with his passive behaviour regarding the team project and that his frequent absence was affecting the team negatively. Milly asked him if it was his decision to do his master thesis on the same day that we had EIT. He explained that it was not his decision but it was based on many other factors that they could not control like the weather and availability of a boat. The team agreed that this was a genuine reason. Milly then informed him that the learning assistants would be joining the group that day because the team still thought he was too quiet and was hoping the learning assistants would guide the team on how to improve the situation.

When the learning assistants joined the group, they asked the whole team a series of questions. They mentioned that it is possible that some team members were not comfortable in the group. Hafsa and Binod both said this might be true. They pointed out that language barrier may not be the biggest problem for Renbin because he was able to understand the questions being asked and even respond to them clearly.

They also wanted to know about the leadership structure in the group. Karl Magnus said the team did not have a leader but he had become sort of the assumed team leader. The learning assistants suggested that instead of having an assumed leader, Karl Magnus should just take on the role since he was already doing it anyway. They then wanted to know if his communication to the rest of the team was always clearly understood. They asked Karl Magnus to give Renbin a task and then Renbin to repeat the task. Karl Magnus found that there was a slight misunderstanding in the communication between the two. The team resolved that Karl Magnus would ask the team members to repeat the task that he had given them, and then follow this up with a written document of the task. Binod also suggested that there should be time lines for the given tasks.

Another suggestion that was given was the use a talking stick when everyone's opinion was needed. Karl Magnus said he was not optimistic that it would work because that suggestion had been passed onto the team previously and it had not been done. Milly suggested that the team should actually try it out this time and see how it worked. The learning assistants brought a 'talking stick' and had everyone take turns to hold it and say something.

They also suggested a progress check-out at the end of the day that would be similar to the process check-out except for the project check-out, everyone in the team would report on the status of their given tasks and what they had done during the day.

The suggested actions were tried on the same day and during the team reflection at the end of the day, there was a general agreement that the progress check-out was an excellent idea. Karl Magnus said it helped everyone to know what everyone in the team was doing.

## **REFLECTION**

**Binod** believes Renbin should have been more active and maybe even lead the group because his master thesis was related to the topic that the team was working on. He says he was concerned about his quietness and agreed that talking to him was a great idea.

**Hafsa** says she expected a lot of contribution from Renbin because his field of study is relevant to the project topic and yet the team did not get enough information from him. She says she understood his reasoning of the language barrier but when he missed two and half classes for different reasons, she thought it was necessary that the team talk to him and see what was going on.

**Karl Magnus** was somewhat disappointed that he was not able to involve Renbin more, seeing as he was knowledgeable in the field. In the end there was a limited amount of effort he was willing to put into getting other people to do work, as it would take time usually reserved for his own work. Furthermore, it proved difficult to define the tasks properly and make the others understand what he wanted from them. After trying to lead for a bit he gave up.

**Milly** says she was concerned that Renbin always seemed to be in the backseat when the team was discussing things related to the project. She says even when team conversations were outside school work, he still always kept quiet despite her efforts to engage with him. With his absence, she felt that Renbin did not care too much for the team. She says she thought it was not fair that he should be so quiet and hardly active when he could offer so much to the team project.

**Renbin** says he was doing his field work for his master's thesis at Frøya, an island. The only way for them to get there was by ferry and their movement depended on the availability of the ferry as well as the weather. He says failure to do this fieldwork would have resulted in him failing that course which he did not want. He says his study programme is on aquaculture and how to cultivate seaweed so he did not think that this was related to biofuels. He did not believe that he had any useful information to help the team in its project. He says his quietness is because of the language issue although he was trying to work on it.

**Umair** says most of the team members were unfamiliar with the team project but at least Renbin could help in a certain section of the project that was related to his study area. He says the team would be participating in a group discussion but no suggestions would come from Renbin. He was expecting more from him. He says he was not happy with his unserious behaviour towards the group especially when the rest of the team was working hard on the project. Umair ends his reflection by saying 'If we count the words spoken by each and every member of the group during discussion then his name will be at the bottom of the list'.

### **3.4 TECHNOPORT PROJECT PRESENTATION**

#### **SITUATION**

On 13/02/2013, all the groups in the village were tasked to present their project topics and goals. That is also the day that the team was challenged to win the Technoport top award. This challenge was inadvertently set by Milly when she said Bond beakers would win the Technoport award this year while she was presenting their group topic to the village with Karl Magnus. The challenge will be addressed as 'challenge' in this report. The quotes are used to indicate that it was not intentionally set.

This 'challenge' was not the main focus as the team progressed with the project work. There was no discussion about what the team needed to do to win the Technoport award. The team only focused on the basic requirements for the poster and discussed about the relevant information needed to be included in the presentation. When the team looked at the final poster, Umair said it looked so simple and thought we could make it more appealing. Karl Magnus agreed that the poster looked simple but it had all the required elements. The team did not even practice the poster presentation to see how it would go. Neither did the team have an edited speech for the elevator pitch that they had signed up for.

On the day of the Technoport exhibition, when most of the posters had been put up, the atmosphere in the team suddenly lacked enthusiasm. Milly said most of the posters she saw seemed more exciting compared to what they had. The lack involvement in the opening ceremony by all the international students in the team dampened the mood even further because the ceremony was in Norwegian and they could not understand what was being said. The mood seemed to only get worse when the team members realized that the teams presentation to the jury would be taking place at 2pm, which was a long way off from the time the ceremony started (around 10am). Umair started keeping track of the jury once they started looking at the students presentations. He said he was hoping that they would come to the team's poster sooner than the time that had been allocated to the group.

## **THEORY**

In the 2013 EIT Compendium, Johnson and Johnson describe a group to be made up of individuals with a common goal. The joint association may involve interdependence in some way and the group must have a reason to exist.

To have a productive group, members must be aware that their success depends on efforts from all the individuals in the team, and the individuals must figure out how they can effectively contribute to the group. Members must also pick each other up and be responsible for each other's performance (NTNU, 2013).

## **ACTION**

The atmosphere started to change for the better when Renbin got out a sample of seaweed that he had come with. He said he got it through one of his friends from the lab and he put it out on display next to the poster. It generated some excitement in the exhibition hall and attracted a lot of curious students who wanted to know what it was and if they could touch it. Some of the students went ahead and asked what the project was about. Milly said her mood started improving after presenting to a few students and receiving some positive feedback.

Explaining how the poster presentation to the jury went, Karl Magnus complained that he had only been given 2 minutes instead of the 5 minutes that had been written on the programme line-up. He thought he did not make a good presentation. Milly reported that the elevator pitch went great even though she was not eager to see the video.

Since the team did not expect any other programmes after the presentations, all the team members except Karl Magnus and Umair left. This proved too hasty of a retreat, as Karl Magnus had beat expectations and got the group into the final eight.

Milly was highly surprised when she received a phone call from Umair telling her that the team made it to the top eight finalists. Umair said that the other groups in village were just as surprised. Milly said she could now see the practicality of the project. Karl Magnus however did not seem so surprised. He said he had looked at the elements of the previous winning poster and worked to have the same basic elements. He said his efforts should not be underestimated. Umair explained how excited the jury was during the second poster presentation. He said he was now convinced the team could win the top award. Karl Magnus signed up to attend and represent the team at the Technoport award ceremony that was taking place later in the evening. Even though the team did not win the top award, Milly says the congratulatory messages the team received from the Professor and fellow students was satisfying enough on its own.

## **REFLECTION**

**Binod** says the team did not concentrate on winning the Technoport award even though it had to participate in it, so he was really surprised at the results. He says he is thankful to their good presenters Milly and Karl who he believes played a part in the team's success. He says he was also glad that Renbin had brought seaweed because he had a chance to see what it looked like just like most of the other students.

**Hafsa** says the Bond breaker's final poster was simple but she was able to read it and understand it and that was what mattered. She mentioned that it was an exclusive idea for Renbin to bring the seaweed sample to the Technoport presentation because it was the first time for her to see it and it attracted her attention. In her words, she says she was surprised at hearing that our group made it to top eight finalists and she thought we could even make it to top four.

**Karl Magnus** mostly made the poster, since he knew the most about the project. This also let him present the entirety of the project. He had thought hard about making a clear and realistic project and believes this helped a lot in the judging. He had no real hope of winning but did his best and was pleased that this landed him in the finals. This was also mixed with some disappointment, as it meant he could not get a proper nap that day.

Since he had done so much of the poster, he took revenge by shoving an unprepared Milly into the Technoport elevator pitch, with only a couple of pages of information he had written that morning. She took it in stride and it seemed to go well.

**Milly** says she was completely surprised that the team made it to the top eight. She remembered Karl Magnus telling her that she was always apprehensive at the beginning of the day such that any positive outcome at the end of the day was always a surprise and a success. She says she appreciated Karl Magnus' efforts and work because he was the major driving force for the team and where it had reached.

**Renbin** says at first he did not think the group would succeed because only two or three members in the group were mostly active and the others hardly showed enthusiasm. He says he just wanted to finish the EIT-course quickly. He found it easier to just follow and agree to what most of the group members had decided. He says he did not do much when making the poster but he thought it would be better to display some seaweed to attract some interest.

**Umair** says he was confident that we had a very good idea and plan regarding the project and he thought the team had a good chance of winning the Technoport award. He says Karl Magnus seemed nervous during the first presentation to the jury, but making it to the top eight helped to validate that it was really a good plan. Umair says his morale was very high and the second presentation went even better. He is still surprised that the team was not chosen for the best award.

## 4. PROJECT MANAGEMENT

The different roles of the team members based on their contribution to the group project and group management are described below.

1. **Binod** provided the necessary basic process knowledge regarding the group project and assisted Karl Magnus with the relevant information required for the project.
2. **Hafsa** worked on statistical analyses related to the project and helped to collect important figures needed for the group project.
3. **Karl Magnus** was the assumed team leader. 'Assumed' because he was not appointed to be the team leader but due to his obvious expansive knowledge and boldness right from the beginning, the role fell on him. He gave directives on what needed to be done and delegated tasks to the different team members.
4. **Milly** was the team secretary and took care of making sure the team reflections were written and submitted on time. She also took up the role of explaining the basic theory to the team members that had limited technical knowledge regarding the project.
5. **Renbin** has good background knowledge and liked to read the literature that was related to the project. Therefore he was the go-to person when the team needed to confirm or clarify certain key technical points.
6. **Umair** used the knowledge he acquired in his bachelors study to assist Karl Magnus in market research and analysis required for the project. He was outspoken with his ideas and usually had something new to say to any proposals that came up.

## **5. PERSONAL DEVELOPMENT**

### **1. Binod**

At first i thought that working with people from different academic backgrounds would be difficult but in fact everything worked out in the end. This EIT course has taught me how to enjoy working in a group. In a short period of time I was able to gain lots of experience and understand how different situations can be dealt with. I feel there is quite an improvement on analytical and communication skills while working through the project. There are a lot of situations that developed in the group that I liked and some that I did not like this project provided some skills on how to tackle the on-going situation. In our group there is wide variation among the members which helped me to learn about other people's culture and ideas.

### **2. Hafsa**

At the very beginning, I found EIT difficult, because I had no experience about working in group. One other thing is I was confused about the diversity of the group members as the group members came from different countries, different cultures and our background are also different. After few classes it seems to me that it is not so difficult, because almost all of the group members are active and help each other. What is more important, all of us contributed to determine the group dynamics. As a Mathematician, I had less idea about biofuel but I came up when I studied about it and also discussed with other members. Now I feel that I can work in group in future and any new work can also be done if I work in group.

### **3. Karl Magnus**

I went into EIT with no real expectations, though I was somewhat excited that I had found something on the list where I had a relevant knowledge. I was not terribly concerned about language issues, as I believed NTNU would screen master-students thoroughly. In the end, the language was much more of an issue and I ended up having to do more than I had expected. In the end I went in a circle from not being fond of groups to being fond of groups to not being fond of groups again. I still feel I learned about potential challenges and would definitely make a better group member in the future.



#### **4. Milly**

I was a little wary about starting this course because I did not understand what it was supposed to achieve. Fortunately I was able to understand what the course was about from the first EIT class. I started out a little quiet in the beginning but later became more outspoken as I realised that only Karl Magnus was active. I started helping the team members out with basic theoretical knowledge about the village when I realised that most of them lacked the technical knowledge and this made the team progress very slow. Mostly I took the time to explain because I would have wanted someone to do the same to me if I was the one that lacked the necessary knowledge. I accepted the role of the group secretary even though I did not plan to hold any responsibilities. However the role taught me that I sometimes lacked the courage say what needed to be said sometimes. I learnt to do this during the course of the class because it was something that was expected of me by the team mates.

#### **5. Renbin**

My high school classmates all thought I am a student who is quiet not only in lectures but also out of class. Since I came to Norway, the situation became more serious. Because of the language problem, I did not dare to say much in the classes. But I find the situation is changing. Through the EIT-course, all my teammates encourage me to express my opinion. And when I did not deliver the idea well, they all are willing to wait for me to consult the dictionary, until they understand well. Sometimes I cannot follow their conversation, as long as I raise my hand, they will repeat it slowly. I feel I am so lucky to meet my teammates. Although I am not so out-going and positive, but when compared to myself one year ago, I have changed a lot. Thanks to the EIT-course and thanks to all my teammates.

#### **6. Umair**

I always felt that I am really good when I work alone but that is not how it works in the industry. I was excited about EIT when I heard about this course in NTNU. My first thought about my group was not good, I was not happy with group formation because we all were from the different fields but the outcome of this experiment is quite good. Now my opinion is totally changed about the group formation, in industry we cannot always get the people we want to work with but any how we have to work with them and also have to give results.

Luckily I got the same environment which we experience in industry, while working in Bond Breakers I gained so many things like how to work with the people with different fields, what pace of the work should be adopted while working in the group though its slow but outcomes are really fast because when you work alone then it is only you who is working but in group because everyone gives their input and the results can be seen pretty faster. Now when I shall go in industry I can use my experience of working with the people which I got in Bond Breakers group.

## 6 CONCLUSION

Leadership was found to be quite essential for the group to work effectively, especially in a group that had such great diversity in both culture and study discipline. The culture diversity however, was not as much of a problem as the study discipline diversity proved to be. The diversity in culture merely brought about a curiosity amongst the team members who wanted to find out how things are done in other countries and there was a mutual respect for each other's values.

The diverse study disciplines however were quite a challenge. The discussions regarding the team project usually brought about a silence in the group as the discussions progressed with a select few. We found the discussions gradually evolved with time as the rest of the team members increased their knowledge in the village topic. This had to be coupled with clear goals and requirements from the tasks that were given to all the individuals.

The learning assistants were a great help to the team. Being outside observers, they were able to recognize problems that existed in the team. Their random questions helped the group members to critically analyze themselves and their behaviors. Honesty in the responses as we discussed these random questions was a major factor in developing an effective team. We realize now, that as we helped the team to develop, our individual selves developed as well, and these were great lessons.

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## **APPENDIX: COOPERATION AGREEMENT**

### **Cooperation agreement - revised**

#### **Work**

Members should

1. Contribute to the final product and do assigned work.
2. Make clear their available time and resources. They should not accept work they will not or cannot complete.
3. Inform the group if work cannot be completed in good time.
4. Plan for the effort required.
5. Keep good logs regarding reflections and contribute to group reflections

#### **Time and place**

Members should

6. Arrive on time to agreed-upon meetings.
7. Inform the group of their location if work is done separately during a joint meeting such as on Wednesdays.

#### **Communication**

Members should

8. Make every effort to make the group aware of relevant skills for the project
9. Be respectfully frank and open regarding ideas and opinions. Both the opinion and the reasoning behind it should be made clear.
10. Make sure that they share the goals of the group.
11. Use clear wording and avoid vague formulations.
12. Make sure to keep abreast of updates to the project page on it's learning and share relevant information on it.

## **Leadership and cooperation**

The group will have

13. No formal leader, though a secretary will be appointed to make sure relevant deliveries are made and to facilitate the group work. The secretary will also take notes during group reflections.
14. No firm roles, but will use ad-hoc structures based on the work that must be done. A persons core competence will define his/her contributions to work done.
15. A clear goal shared by all members.

## **Conflict**

In case of conflict

16. The secretary or a duly appointed member will arbitrate smaller disputes.
17. A majority should be obtained for larger conflicts. The issue must be thoroughly discussed and the minority not feel ignored. In the case of complete deadlock, the secretary or a duly appointed member must make a decision. A member with a core competence in the disputed area should have high weighting.

## **Sanctions**

In the case of a member not doing work or consistently not arriving on time the group should

18. Thoroughly remind the member of his/her obligations.
19. Have the member offer a token of good will such as a soft drink or coffee.