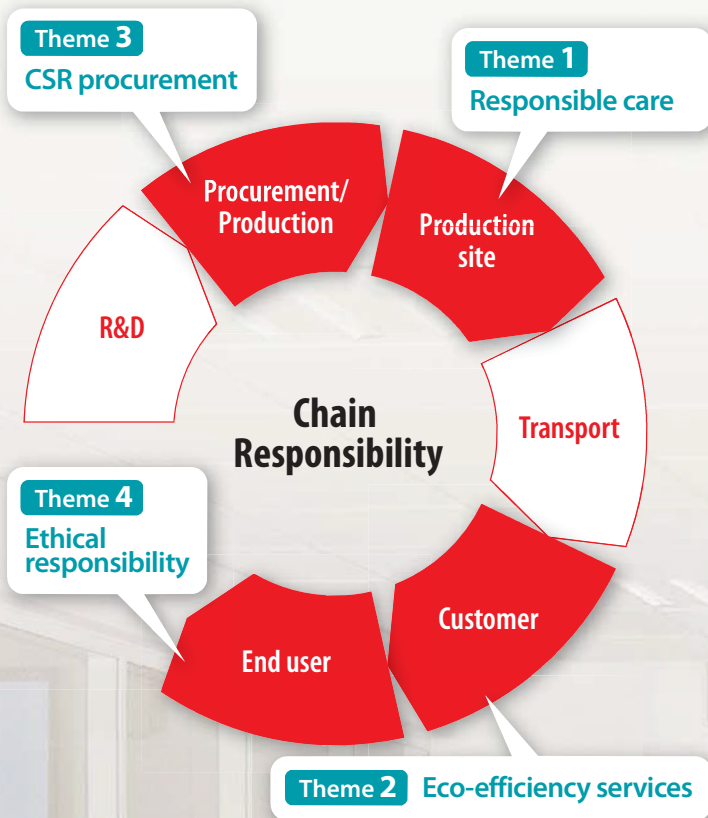


How Teijin Aramid Creates Qualitative Value in the Chain

Teijin Aramid B.V., a subsidiary of the Teijin Group, is a global leader in aramid fibers. Such a position comes with great responsibility for the company, employees, customers and the environment. During the 7th stakeholder dialogue held in March 2013 at the boardroom of the Teijin Aramid headquarters in Arnhem, the Netherlands, stakeholders and representatives of Teijin Aramid had an in-depth discussion on topics including the expanding scope of CSR, chain value and the growing influence of society on the industry as exemplified by the demand for transparency.



Discussion of Four Main Themes Related to Supply Chains

Since 2004, long before CSR became a mainstream topic in the industry, Teijin Aramid was aware of its responsibility towards its customers, employees and society. For example, the company invested in infrastructure to reduce aramid waste and recycle *Twaron*® aramid fibers. This recycling program received the 2012 Responsible Care Award from the Association of the Dutch Chemical Industry (VNCI), a prize awarded annually by the VNCI to enterprises in the chemical industry that have excelled in the fields of environment, safety, health and sustainability. The scope of Teijin Aramid activities has also expanded and we have embraced the idea of chain responsibility. Teijin Aramid has worked on CSR as a key element of its business in line with the brand statement of the Teijin Group: "Human Chemistry, Human Solutions." Teijin Aramid recognizes and understands the growing demands from society regarding safety and transparency. Over the years, Teijin Aramid has given account of its actions in its annual CSR reports. The tradition of "stakeholder dialogues" as a part of these reports shows the open mind of the company. In this 7th stakeholder dialogue, four themes were discussed: responsible care, eco-efficiency services, CSR procurement and ethical responsibility.

ing. Antoon van den Boogaard
Ethics advisor, founder of Ethiek ZAAK

Drs. Harrie Bosman
Manager, Eco-efficiency Services, Teijin Aramid B.V.

Dr. Ir. Colette Alma
Director General, Association of the Dutch Chemical Industry (VNCI)

Ir. Mark Claassen
Head of Purchasing, Teijin Aramid B.V.

Drs. Marcel Werner
Manager, CSR/TRM/QHSE, Teijin Aramid B.V.

Facilitator
Ms. Tae Maki
Manager, KPMG Copenhagen Climate Change & Sustainability



Theme 1 Responsible Care

Don't Hide it, Show it

Tae Maki: What kind of activities does Teijin Aramid promote to meet the requirements of responsible care?

Wessel Bruining: For a long time, we have been participating in a national responsible care program under governance of the Association of the Dutch Chemical Industry (Vereniging van de Nederlandse Chemische Industrie, VNCI). The program sets a framework for activities/operations which allow the real effects of operational standards to be seen based on a best-in-class approach. It is all about optimization and improvement. In some areas, like recycling, we are quite good, but in other areas we lack the scale to develop an integrated system further. That is why we are in talks with **AkzoNobel**, who we have a long and close relationship with, about using parts of their framework to move ahead. Last year, we implemented a major recycling project aiming to recover used products for reuse. Since 2004, we have invested in infrastructure to reduce aramid waste and recycle *Twaron*[®] aramid fibers. We have a quite advanced technology in recovery of acid. Through our recycling program, we address customer problems by looking at the remaining value of products at the end of their life cycle and acting accordingly. We try to bring responsible care to the whole chain.

Tae Maki: Supply-chain management can also be considered a part of responsible care?

Colette Alma: Yes. Responsible care used to be only

a thing for the tier-1 suppliers. Now it extends further than that. Companies are developing indicators to see what happens to their products all along the supply chain. The area it concerns is large and the demands are very high. The demand for transparency is also increasing. Accidents in the past have shown the public that there are some risks involved and people are reacting to that. Inspections became stricter and there is also political pressure. That is the reason we are in an ongoing dialogue with the government. Recently, we agreed on how the results of inspections of individual companies will be published in the future as part of transparency. We also participated in some regional community discussions. As result of the increasing transparency, the Dutch safety standards are now high.

Wessel Bruining: Transparency in what you are doing creates public trust and it shows that you are open to discussions with stakeholders about what is going on. The flip side is that it is getting more difficult to handle perceptions. I think VNCI did a very nice job of creating the perception about the value that chemistry offers; that is, chemistry as part of the solution of the society of tomorrow and the image of chemistry offering solutions. However, changing perceptions is a long process. If an incident with chemicals involved happens it is one step back again.

Marc Poortenga: Society sets the standards. These are not in but outside the product supply chain. What if there is someone from outside that has a different perception?

Colette Alma: We engage in public debate in newspapers and help individual companies that are in the center of debate or inspection. We advise companies to ask their customers for their inspection

AkzoNobel N.V.

In 1972, AkzoNobel developed the first para-aramid fiber, which at the time was called *Arenka*[®]. Due to certain circumstances, actual production did not start until 12 years later at the new plants in Delfzijl and Emmen. In the meantime, the fiber was renamed *Twaron*[®] and it entered the market in 1987. As part of improvement measures, AkzoNobel moved its fiber activities to a separate legal entity (Acordis) in 1999, and sold 78% of it to CVC Capital Partners in 2000. Teijin Ltd. took over all *Twaron*[®] activities in 2000. In 2007, Teijin Twaron B.V. was renamed Teijin Aramid B.V., and it now markets four different brands of aramid fibers worldwide.

Mr. Tatsuya Ono

Senior Manager, Environmental Management CSR Planning Office, Teijin Limited

Ir. Marc Poortenga

Product & Key Account Manager, Chlorine & Hydrogen, AkzoNobel N.V.

Mr. Wessel Bruining

Director of Manufacturing, Teijin Aramid B.V.

Mr. Gerard van den Hondel

Sales Account Manager, Elastomer Reinforcements, Teijin Aramid B.V.

Dr. Christoph Hahn

Director of Marketing & Sales, Teijin Aramid B.V.



Via video connection



External Stakeholders



ing. Antoon van den Boogaard

Antoon van den Boogaard, founder of Ethiek ZAAK, studied construction, specializing in technical business studies. He uses this education background in his work as a business ethics advisor and he has been working as a business consultant for many years.



Dr. Ir. Colette Alma

Colette Alma is the Director General of Association of the Dutch Chemical Industry (VNCI). After working as a chemist for Royal Dutch Shell plc, she took up a position at the Dutch Initiative for Sustainable Developments, a foundation that supports sustainable development.



Ir. Marc Poortenga

Marc Poortenga is a Product and Key Account Manager in the Chlorine & Hydrogen department (mainly Western Europe) of the Industrial Chemicals Business Unit at AkzoNobel N.V. He has been working for the company since 1999 and has vast experience addressing sustainability and CSR issues within the company.



Ms. Tae Maki

Tae Maki is a manager at KPMG Copenhagen Climate Change & Sustainability in Denmark. She has provided services for the Teijin Group for more than ten years and has extensive knowledge and experience in auditing global manufacturing companies in the electronics, chemical and other industries.

reports. Many companies have good practices and are in a dialogue with local communities. When difficulties occur they can easily contact these communities. So being in touch with locals is very worthwhile, even during quiet times. A new phenomenon is the social media. Nowadays people are informed in a split-second and companies have to be aware of that.

Marcel Werner: A small issue can turn into a huge thing when it is caught by the media who put their own spin on it. We cannot use social media but we have to realize its existence. It may change our behavior.

Marc Poortenga: Local communities also include workers at the facility and this creates a kind of loyalty. These people know more from the inside than the general public. On the other hand, workers can become critical; they demand to have an explanation.

perspective of every participating chain partner. The goal of this business model is to maximize cost performance in the chain in a sustainable way. With the CBM we can show, both financially and ecologically, that the profit with our product is higher than that of comparable products. For example, we did calculations on gas cylinders and found that gas cylinders using our aramid would be 40% more profitable than steel gas cylinders. The ecological advantages are 33% less energy consumption and 33% less CO₂ emissions (depending on the grid). Based on literature, the positive effects of less weight during transport are significant, and these transport effects have not been taken into account yet.

Wessel Bruining: Steel is a hard, maintenance-sensitive material. This is the old mindset that still is common in the industry. Our lightweight material can compete with steel and with our model we are able to quantify it per specific application and show what it really means. The CBM increases awareness of whether all elements have been included and also creates the possibility of seeing the value for each element; it helps people to become more aware that all the elements are important.

Harrie Bosman: With the CBM, for each one of our customers, we can calculate the financial and ecological benefits of our product. Together with the customer we can consider all kinds of scenarios. What would happen if the energy price rises by 30%? What would happen if the rubber price rises by 15%? We can show the outcome of these kinds of questions in real-time.

Gerard van den Hondel: It is very important to make things visible. Our material disappears into a

Theme 2 Eco-efficiency Services

Teijin Aramid Solutions Creating Higher Value

Tae Maki: Teijin Aramid took eco-efficiency to the next level with the development of the Customer Benefit Model (CBM). Can you elaborate on this and explain the advantage of this model for the customer?

Harrie Bosman: We developed the CBM by combining the results of eco-efficiency analyses with customer data. In this way, we can calculate the value of the product over the total value chain from the

cable, into a tire or into a conveyor belt. We produce the material, a weaver makes the fabric, a belt maker produces the conveyor belt, a construction company builds the installation, and at the end, a mining company saves energy through use of the belt thanks to our product. However, how would they know about our product? It becomes even more complicated when we suggest removing the heavy steel and using our material instead because it requires adjustments to the construction process. In this complex picture, the CBM proves its value.

Harrie Bosman: Customers are happy that they can show to other parties in the supply chain that their product is not only profitable, but saves energy, raw materials and diminishes CO₂ emissions. Another aspect from financial and ecological points of view, is that *Twaron*[®] is more expensive per kilogram than steel and it has a larger eco-footprint compared to steel or polyester. However, when you look at the functionality, it is inexpensive and very ecologically friendly. Per kilogram it is expensive but in terms of functionality it is quite an inexpensive material.

Tae Maki: Can you give an update on **the project in South Africa**?

Gerard van den Hondel: The belt maker is now going to install the first belt using our material at a mining company. In this project different parties in the chain are involved and they all want to see how the new belt will run and if it really saves as much energy as we have calculated. Our calculations with the CBM showed energy savings of approximately 12.5% for both *Twaron*[®] and *Sulfron*[®] and combining both solutions leads to savings as high as 25%. Depending on the energy source used, there will be huge savings in CO₂ emissions too. During the trial there will be also concerns about reliability. Disruption of operations is the biggest fear for anyone running continuous operations.

Colette Alma: Usually better performance means higher costs, whereas, in this case, better performance creates lower costs. It shows that there are still opportunities in the value chain to achieve both better environmental performance and lower costs.

Harrie Bosman: At the moment we are making calculations together with five deep mining companies in Canada to see what happens if we replace steel hoisting cables with *Twaron*[®] hoisting cables. A steel cable weighs approximately 60 tons but a cable with *Twaron*[®] weighs only 18 tons. Looking at the hoist, the change means many more tons of payload. For some mines that is important, for others the reduction of energy use is of more importance. The need for better performance

varies by company, by country or by region.

For example, in some regions the resolve to save energy is hardly present.

Tatsuya Ono: I introduced this tool to our management team in Tokyo and other business groups such as Carbon Fiber & Composites because composites can contribute to reducing CO₂ emissions in finished products in the automotive and other industries. I think this tool can be very useful for these groups and their customers. In the future, we will move towards implementing eco-efficiency analysis.

Theme 3 CSR Procurement

Quality Control as a Driver for Engagement Along the Supply Chain

Mark Claassen: In approximately 2007/2008, we started thinking how we could fit CSR into the procurement discipline. We drafted a CSR declaration for suppliers together with procedures on how to act. One of the general aspects of our CSR declaration is that suppliers should act in a fair way and comply with local regulations. Specifically, we focus on people aspects like worker safety, being a good employer, ensuring prevention of child labor and the freedom to organize. We also want to know about topics like environmental permits, how the supplier deals with waste, hazardous substances and prevention. The final point is corporate ethics where we zoom in on disclosing information, protection of intellectual property and other issues like corruption and extortion.

Tae Maki: Have there been any changes in your declaration since the start in 2008?

Mark Claassen: Not really. We mainly buy in Western Europe from companies like AkzoNobel and BASF which makes things in this respect easy because we know the precise situation in the factories.

Colette Alma: I've heard about the practice of visiting customers to see how they are managing. Have you ever de-selected a supplier?

Wessel Bruining: We've rejected some suppliers because, in our opinion, their way of operating their plant was very poor. Poor handling by a supplier can jeopardize our continuity and our business, and that puts our reputation as a reliable company at risk.

Mark Claassen: Even when a supplier is ISO-certified, we visit their facility to see how it looks and check their procedures.

Marcel Werner: In general, customers respond

The Project in South Africa

A mining company in South Africa runs a conveyor belt 10km long that brings coal from the pit to the production facility. This installation uses a tremendous amount of energy. The company foresees that the price it pays for its electricity will rise by 25% each year. In addition, the electricity supply and transport is unreliable which results in blackouts. The company wants to reduce energy consumption of its existing installation by 7–10% a year. Using the CBM, Teijin modeled the case for replacement of steel with *Twaron*[®] in the conveyor belt.

Risk Assessment

Risk assessment is the identification, evaluation and estimation of the levels of risks involved in a situation, their comparison against benchmarks or standards, and determination of an acceptable level of risk. It characterizes the nature and magnitude of health risks to humans (e.g., residents, workers and recreational visitors) and ecological receptors (e.g., birds, fish and wildlife) from chemical contaminants and other stressors that may be present in the environment. Risk assessment also identifies the controls or improvements that need to be put in place to avoid or to reduce the risk. Risk management is the action based on consideration of this and other information.

positively to our approach. One of our Indian customers didn't handle one of our products safely enough. We went there with experts to explain and educate them on safe handling.

Tatsuya Ono: Supply-chain management is important to the Teijin Group. We promote CSR activities globally.

Tae Maki: What actions should companies take to further strengthen the supply chain?

Marc Poortenga: We need to work towards real engagement, stakeholder engagement. We should be much more open towards each other. We visit our customers to see what they are doing, to see whether they handle the chemicals in the right way. We'd like to have an active discussion on how to use our products. Mind you, it is not all about us telling them how to do certain things. We also invite customers to our place to show them how we manage things. It is about joint **risk assessment** and that goes both ways.

Theme 4 Ethical Responsibility

Pride in What Teijin Aramid Does, and What it Doesn't

Christoph Hahn: For Teijin, ethical responsibility means complying with all kinds of regulations. It also means an intrinsic consciousness within the company of what are the dos and the don'ts. It is also related to the overall mission that Teijin has to contribute to quality of life. From this, one can retrieve our four core values: Passion, Unity, Respect and Excellence (PURE). These core values lay the platform for our code of conduct and explicit rules on the dos and don'ts and these are communicated within the company.

Tae Maki: Bearing these values in mind, are there any areas that Teijin doesn't want to be in?

Christoph Hahn: We have a list of criteria for

businesses we don't want to be in; for instance, the business of animal testing. Furthermore, we don't want our materials being used in weapons of mass destruction or other offensive weapons like land mines. We do allow *Twaron*® to be used in defensive applications like bulletproof vests. We also make exclusions for countries that we don't want to supply to. We do not want to partner with companies who actually harm people's lives with their product. Of course we cannot prevent someone down the line using the product in a way we don't want it to be used. However, for almost all businesses, we know the whereabouts of our products. At Teijin, we respect stakeholders, other companies and people outside who to contribute to society. This respect is also reflected in our ethical ambitions.

Antoon van den Boogaard: What does business ethics mean? Ethics is mainly a way to reflect a certain set of norms and values, or in other words, morals in a certain type of business. We can always evaluate whether this set of norms and values is still good, especially when there's a new kind of technology or a new product. You always have to ask yourself, "What is our responsibility and what does it mean for Teijin?" and "What about sensitive topics like who do you provide your service to?" Mr. Hahn says that Teijin wants *Twaron*® to only be used in defensive applications. How do you determine that? In the ballistic market even defensive products can contribute to the spiral of violence.

Christoph Hahn: Our materials should not contribute to a product that is primarily used for destruction. For example, bulletproof vests are made for protecting lives. Our criteria for not allowing supply are known among all the salespeople. In the case there are doubts, it will first be discussed at the sales department. If a clear conclusion is not reached at the sales department, it is discussed with me. If a decision still cannot be reached, the CSR Ethics Committee must become involved.

Teijin Aramid B.V.



Dr. Harrie Bosman



Mr. Gerard van den Hondel



Ir. Mark Claassen



Mr. Wessel Bruining

Teijin Limited



Mr. Tatsuya Ono

Antoon van den Boogaard: If Teijin does not deliver, someone else will. How do you deal with this?

Christoph Hahn: If it is against our principles, we don't deliver. It is the same with corruption. We don't go into businesses with bribery.

Tae Maki: How do you build up such internal discipline with regards to business ethics?

Marcel Werner: By creating awareness. Make our people aware of the dilemma when we are entering certain areas in sales. Of course there is a wide gray area where we can discuss whether things are offensive or not. This is never a clear line.

Antoon van den Boogaard: A question that can be topic of a dialogue in the company is "What is the most important motivation to improve our business?" There are internal and external drivers. External drivers can be public opinion, the image surrounding the company of Teijin Aramid, the image of its stakeholders and legislation.

Wessel Bruining: I think at heart we all feel very connected with Teijin's corporate philosophy of

"improving the quality of life," "in harmony with society." Not only on an abstract level, but also on an emotional level. We all feel very connected to that in our business.

Christoph Hahn: The intrinsic motivation is that you also want to be proud. We are very proud of the company and the product *Twaron*®. With *Twaron*® we want to contribute to society in a positive way.

Tatsuya Ono: Ethical issues are important to us and we should discuss them more. As part of sustainable management we will improve these in Japan gradually.

Tae Maki: How can a company be prepared for the risk of a potential exposure of business violations?

Antoon van den Boogaard: Part of the answer can be to care about identity. If you want to find out who we are as a company, where would be the first place to find your answer?

Wessel Bruining: We want to be a respected and proud company.

Comment from the Facilitator

The CSR to Aim for Is Business Innovation through Stakeholder Collaboration

There are varying degrees in the depth to which CSR is implemented, but an end point that should be aimed for is business innovation centered on CSR.

For example, new product development incorporating the perspective of resolving global social issues and the resulting expansion of new customers/markets and sales channels. Most of the business successes in Europe have been based on a stance that seeks to create future business chances from trends related to sustainability and using these

trends to build platforms for new activities rather than simply seeing them as risks. Stakeholders in the value chain are an essential element of this and collaboration with these stakeholders should be able to lead the way to innovative solutions.

The eco-efficiency analysis service that became a main topic in the dialogue this time is a good example consistent with this deepening process. In the future, I would like to see this linked to Teijin's global strategy based on wide-ranging trends.



Ms. Tae Maki
Manager,
KPMG Copenhagen Climate
Change & Sustainability

Comment from Teijin Aramid

Looking Back at the Dialogue

As the topic for discussion in the dialogue this time, we chose "chain responsibility," an area where an even higher level of commitment towards society is being demanded. During the preparation stage, we were in frequent contact with Mr. Ono of the CSR group, Teijin Limited and we held repeated discussions on the basis of our presentations. This worked to great effect and all participants joined in the discussion enthusiastically.

It was an ambitious attempt to cover all four

themes in depth within three hours but it was a great help that the facilitator, Mrs. Maki, had prepared the items well and that she was able to oversee the progress of the discussions. The opportunity to have this dialogue with several stakeholders sitting together at the one table was a great and positive experience for us.

On the basis of this experience, we will continue aiming to build good relationships with various stakeholders.



Drs. Marcel Werner
Manager, CSR/TRM/OHSE,
Teijin Aramid B.V.