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# New clothes from old

## ***RWS assessing Circular Economy pilot***

**Can used clothing be 'dematerialised' successfully back into its component materials - and then be used to create more clothing? Dutch waterways, public works and environment authority Rijkswaterstaat (RWS) is coming to the end of a unique pilot project, with some of its outdoor staff wearing recyclable uniforms.**

Lock stewards are a very specialised group in the RWS armoury. Out and about on the Netherlands' waterways throughout the summer season, what they wear has to survive everything the changeable Dutch weather and a highly-active job can throw at it.

A unique pilot project drawing to an end in September reflects the Dutch government's aspiration to achieve maximum re-use and recycling. In it, some 50 lock stewards were issued with caps, polo-shirts, raincoats and fleece jackets made of 100 per cent recyclable polyester materials.

Supplied by innovative manufacturer Dutch aWEARness, this second season's uniforms are again to be handed in shortly, to be 'dematerialised' into their component raw materials. According to the manufacturers, this 'new from old' process could be repeated up to eight times.

The experiment is part of the European Life+ REBus (Resource Efficient Business Models) project, in which Rijkswaterstaat is working with the market to evolve business models for dealing responsibly with raw materials.

Is it working? "It's still just a little too early to say, with the evaluation due in September and October," points out Wilco Kalkman, Facilities Advisor at Rijkswaterstaat, "What I can say is that where we originally thought the next year's uniforms could be produced entirely from the material retrieved from the used clothing, in fact extra (recycled) material had to be added."

### **High requirements**

Workwear is difficult to recycle because of the high requirements imposed on it. Workwear is also the public face of a company, so that re-use and recycling can

be tricky issues. And there are still plenty of technical challenges involved in sorting recycled textiles.

But the benefits are significant: no new raw materials (or perhaps very few) are needed for new workwear, and no waste has to be burned. If the pilot project is evaluated as a success, new RWS tenders could place increased focus on environmental aspects, not just for workwear but for hosts of other products.

And the downsides? In the current state of the technology, notes Kalkman, "Certainly the workwear we're using in this pilot project is a bit more expensive than what we would normally buy. What is unique about this pilot is in fact that we have leased the uniforms, not bought them."

Re-use of the material is possible thanks to Returnity®, a 100% recyclable polyester material, and the Circular Content Management System, a track-and-trace system that Dutch aWEARness developed in collaboration with their partners to monitor the entire process.

### **Sustainable fabrics**

Fashion designer Rien Otto has worked on sustainable fabrics for some time, and had the opportunity to apply his ideas on a larger scale through the European Commission's Eco Innovation programme. This resulted in the development of EcoProFabrics in 2013, and the launch of Dutch aWEARness and its Returnity® fabric.

Otto noted recently that some 2,500 recycled garments are currently in circulation – a figure set to rise to 30,000 garments based on polyester fibres on an oil-basis, which can be melted down and re-spun.

The garments in the current RWS trial are specified as being recyclable eight times in a closed cycle. The track-and-trace system charts the entire raw materials chain and guarantees its origin. And the system has been developed in such a way that it can also be used for chains other than the textile industry.

Dutch aWEARness has conducted pilot projects to discover just what types of fabrics are needed across the workwear market, from suits to protective clothing. At least nine pilots have been run so far, for Rijkswaterstaat, Royal HaskoningDHV, Brabant Water, Desso, Dura Vermeer and Auping among others.

### **Existing uniforms**

An obvious question for the RWS pilot project is whether it's not easier, and cheaper, to simply re-use the existing uniforms the next season. "Good

question,” notes Kalkman, “and one that’s often asked, especially as in this case the uniforms are only used for a few months each year. But even if we did opt for this, after a while the clothing would still not be wearable. What then? That’s why this pilot project is investigating recycling.”

The results have been mixed so far, points out Kalkman. “They were certainly able to recycle the raincoats, but the material they got from the process was not enough to make new raincoats and so they had to add. They were able to recycle the fleece jackets and polo-shirts, and as far as I’m aware these were also to be turned into bags.”

The pilot project’s overall goal is thus to determine whether the whole idea of manufacturing, breaking down and then remanufacturing makes ecological and economic sense on a broader scale. At the end of the project in September, as part of the performance-based contract, Dutch aWEARness is to be asked for a full report, explains Kalkman, detailing exactly what has been done, and what recycling volumes were achieved.

How do the lock stewards themselves feel about their ‘recycled’ uniforms? Kalkman: “When people are dissatisfied with the quality or the fit, you hear about it, and if it’s satisfactory, you don’t. There are also special circumstances to take into account for this group. For instance, don’t give people working on or near water anything in yellow, which attracts flies!”

### **RWS lead**

Should other organisations be encouraged to follow the RWS lead? Kalkman: “I certainly think it would be interesting for others to roll out a pilot like this on a project basis, to get an idea of what’s involved. From our own point of view we could decide to continue with Dutch aWEARness, or we might decide to go with our main supplier, Groenedijk, which is further along in the development of circular clothing.”

In the meantime a second RWS pilot project has been launched involving high-visibility rainwear by Dura Vermeer. The garments are to be monitored for two years, and will also be converted into new fabrics and rainwear after each period of use.

Whatever happens, notes Kalkman, next year RWS will give careful consideration to what’s possible for the lock stewards in terms of sustainable clothing.

“I don’t think our current workwear package is entirely suitable yet,” he notes. “We’re certainly in the selection phase with quite a few workwear suppliers. And

I can certainly imagine that when it comes to selecting and compiling a new workwear package, we will now also take its circular nature into account.”



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