





## **Editorial**



SWICO will be joining ICTswitzerland in 2010 and hence will be increasing its campaigning for the industry's major concerns as part of the umbrella organisation. As the trade association for digital Switzerland, this underlines its cosmopolitan and watchful attitude that focuses on the common good. SWICO Recycling's activities and dedication are important building blocks in this strategy.

In 2009, SWICO Recycling proved that its 15<sup>th</sup> anniversary was no reason to rest on its laurels. On the contrary, SWICO Recycling displayed great commitment and kept raising awareness among the population and companies of the significance of recycling.

The relocation to new offices in the Carbahaus in Zurich-West also put SWICO in a better position to tackle the challenges outlined in this Activity Report. This move enabled the SWICO Recycling and associ-

ation teams to work more closely together than ever.

SWICO Recycling is looking to the future with optimism - a future in which, following an economic crisis that touched most of us fairly lightly, issues such as energy efficiency, environmental protection and recycling must again be brought to the attention of every single person, especially young people. SWICO Recycling is notably heightening awareness that our natural resources are finite; it is more critical than ever before for the sake of the people, the soil, water and air - to be restrained in our use of energy and to find an environmentally friendly way for the disposal of the components of disused electrical and electronic equipment that contain pollutants.

Kirfl.

Andreas Knöpfli, President of SWICO

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Cover: Humbert Ghirlanda is always happy to see old-fashioned domestic appliances. "In the past you had to work hard to afford a television," he says, commenting on the rapidly changing times as he works at the "Ökihof" in Cham.

SWICO Recycling visited various collection points in Switzerland for the 2009 Activity Report. Employees from Ticino and Northern Switzerland, among others, talk about their everyday lives and special items that end up at the collection point.

# "Greater awareness is the goal"

CD recycling, logistics and efficiency are important issues for Paul Brändli, Managing Director of SWICO Recycling.



Paul Brändli: "There is still too little consideration for CD recycling, which is why we are working on a Swiss-wide project."

#### Which events stood out in the anniversary year 2009?

Paul Brändli: We celebrated our 15<sup>th</sup> anniversary with the Greenforum 2009, along with 180 Convention signatories and partners. We also produced a promotional clip that explains our system in six minutes. This film is a great help to us in making our concerns known. These measures, and others, have enabled us to raise awareness among the population and companies of the importance of recycling and SWICO Recycling's pioneering role.

#### And how did operations turn out?

The quantity of goods disposed of with us rose by around 3.5 percent in 2009. We also reduced costs and increased efficiency through our move to the Carbahaus and the simultaneous outsourcing of our IT; our new open-plan office costs us less and allows direct communication between all employees of both SWICO Recycling and the association, enabling us to utilise valuable synergies.

# For the first time foreign operators were eligible to bid in the 2009 recycler tender process. Why did SWICO Recycling still opt for Swiss providers?

Economic and environmental criteria were critical in the evaluation of domestic and foreign bids. The result is that the additional transport makes working with recyclers abroad less environmentally friendly and more expensive than working with Swiss providers. Moreover, we were not satisfied with the quality of foreign recyclers.

#### Which projects will SWICO Recycling be tackling in 2010?

We would like to continue the successful mobile phone campaign of May 2009 and increasingly incorporate the teaching folder we have developed on the topic of mobile phones into education on the environment. The goal is to increase the proportion of disused mobile phones that are returned and, in particular, to raise awareness of this issue among young people and adults. The same applies to CDs. That is why we have decided to implement the pilot project with reDisc throughout Switzerland if three wholesalers are prepared to collect CDs in exactly the same way as PET plastic bottles. The disposal of CDs should not entail any cost or effort for consumers. Therefore, an additional container next to the existing PET and battery collection boxes would be the ideal solution - existing logistics would then transport them to the waste disposal organisations. We are also concerned with the issue of logistics in another respect: we are currently reviewing logistics with the recyclers and a logistics coach based on the dissolution of regions for the recyclers1.

#### What goals did you set for 2010?

We would like to continue to drive forward awareness of the disposal of small electronic equipment such as mobile phones, CDs and MP3 players. I am very keen to make the entire population, and that includes companies, even more aware of the recycling system in Switzerland. The new sales channels mean that there are many providers, such as online or mail order retailers, who operate from abroad. This raises the question of whether the Advance Recycling Fee (ARF) should be levied for these sales. We

"We would like to drive forward the disposal of small electronic equipment such as mobile phones, CDs and MP3 players."

have developed suggestions for the revision of the VREG<sup>2</sup> and forwarded these to the Federal Office for the Environment. The goal is to generate equal conditions for all companies, but participation should remain voluntary.

- <sup>1</sup> For details see page 11
- <sup>2</sup> Regulation on the Return, Take-Back and Disposal of Electrical and Electronic Equipment

# 2009 - the highlights

## February

#### SWICO Recycling is ISO-certified

Construction of the business model began in May 2008, hitting peak in February 2009 with the its certification by SQS under ISO 9001: 2008 with integral internal control system. Headed by the company HR Consulting Managementsystem Beratungen, employees analysed each activity, defined and optimised interfaces and documented them in traceable processes. This safeguards the expertise of SWICO Recycling and allows processes to be continuously improved for reliable, verified and environmentally friendly recycling.

## April

# Greenforum collects for the Pestalozzi children's village



SWICO Recycling celebrated its 15th anniversary on 1 April 2009. 180 quests, along with the speakers Professor Franz Josef Radermacher and Professor Armin Reller and the artist Jutta Znidar, met in the "Triibhuus" in Zurich. Together they discussed recycling with sustainable resource management, the flow of materials and globalisation, they also chatted one-on-one and enjoyed good food. Three pictures made out of computer scrap were also auctioned; CHF 7,200 was raised and donated to the Pestalozzi children's village, which used the money to buy a wood-chip heating system. The next Greenforum will be held on 18 May 2010 at "Lake Side", Zurich.

### May

#### Relocation and IT outsourcing

The SWICO team moved from the Technopark to the Carbahaus. At the same time, the opportunity was taken to outsource all IT, which led to a considerable reduction in costs. The rent at the new site is also lower, and the open-plan office allows the SWICO team to communicate even more directly and quickly. The new address is: Hardturmstrasse 103, 8005 Zurich.

#### June

#### Suisse Public

SWICO Recycling joined forces with the SWISS RECYCLING association to exhibit for the first time at Suisse Public, the exhibition for public-sector entities in Berne. SWICO's appearance was a success thanks to its team, which was able to answer all recycling questions posed by the visitors. The next Suisse Public exhibition will be held in 2011.

#### Gartencity Zurich



During summer, 300 artistically-decorated flower pots transformed Zurich into a garden. SWICO Recycling's contribution was a pot by the artist Ignaz Birkhofer. At the end of September, the raffle for the SWICO pot was won by ALSO Schweiz AG in Emmen.

#### Film about SWICO Recycling



How is IT equipment being recycled? A film that looks into this question and the entire lifecycle from the purchase of a new device to its dismantling into individual valuable materials was launched in June 2009. Two versions of the film can be downloaded from www.swicorecycling.ch. It can also be tailored to an individual company if desired. If you are interested, please contact marketing@swicorecycling.ch

## September

#### E-waste study tour















Paul Brändli held a speech at ETH Zurich for 20 managers with environmental responsibility from various countries who have to deal with e-waste. The subject was "How does the SWICO Recycling system work?"

#### November

#### Globalisation week

A globalisation week for apprentices was run by the Berufsschule für Gestaltung Zurich (cantonal design school). One of the purposes was to raise awareness of electronic products and their disposal. The students learned fascinating details about how the metals in mobile phones are extracted. There were enthusiastic discussions, and the apprentices learned that the raw materials in mobile phones can be recycled reliably and efficiently via SWICO Recycling. SWICO Recycling organised the teachers and collected 699 old mobile phones for recycling at the school during this week.



Franz Josef Radermacher believes better education in schools and through the media is urgently needed.

# "We are consuming at the expense of future generations"

Global technical progress opens up many new opportunities for people. Innovation expert Franz Josef Radermacher discussed the advantages and disadvantages of this trend in our interview.

The spirit of the times in western countries is very strongly oriented towards consumption. What are the consequences of this for the environment?

Franz Josef Radermacher: The level of consumption is higher than ever before, partly because average consumption is rising and partly because the world population is growing. Other elements include the catching-up process in very populous states such as China and India. Overall the consequences are catastrophic; we are consum-

ing at the expense of future generations, especially in terms of energy and the climate. Moreover, the richer parts of the world are consuming the resources of the poorer parts way below price. It is clear that our current style of consumption cannot be sustained if the global population rises to ten billion.

So we are also buying and consuming too many computers, mobile phones and televisions? Yes. Technical development is very much faster than in the past, and new technologies are implemented over shorter and shorter periods. This is related to the fact that chip performance is regularly doubling and increases in performance can be achieved without increasing price. It is then logical to upgrade from one device to the next and to throw "old" devices into the household waste because they are small. The consequences for the environment are simply disregarded. That means that we

have to deal with the negative impact of a very rapid technical development that is at the same time bringing us huge opportunities. As an example: nowadays only around one billion people have a bank account, yet three billion have a mobile phone. It may well be that mobile phones are the most resource-effective and cost-effective way of integrating two billion more people into the global finance system.

# And how is this technical development changing our lifestyle?

The possibilities offered by information and communication technology give us access to an enormous pool of knowledge. Of course, that completely changes the value added chains that have an international orientation and promote globalisation. And this touches on many areas; budget airlines are just one - their business model would be inconceivable without modern IT. Budget airlines have opened up the world to many people and given them a chance to appreciate global connections. However, environmental and social costs cannot be integrated adequately into the economic system, and some social and environmental problems arise as a result. Overall, modern development is driving growth in the global population and consumption, and resources are being utilised in a more and more extreme way.

#### What concrete measures are required to prevent raw materials being exploited and to minimise the mountain of waste?

Generally, technical innovations need to be combined sensibly with innovations in governance, in other words political specifications and associated regulations. This includes better rules in the World Trade Organization (WTO). One example of this need is the way in which electronic waste is handled. In the Basel Convention, rich countries undertook to recycle electronic waste. European countries went so far as to specify that recycling must take place in Europe, which seems sensible to me. One successful and truly pioneering service in this re-

spect is the collective system for taking back electronic waste, which Switzerland introduced in 1994. In the USA it is completely different. There, a global "journey" for electronic waste has been initiated under the concept of "global recycling". In reality, however, all this does is poison the environment in poorer countries. This attitude urgently needs to change.

"Many devices simply end up in the house-hold waste. The consequences for the environment are simply disregarded."

# And how is it possible to raise awareness of the whole issue among European consumers?

Everything comes down to education – in schools, at exhibitions or in the media, for example. Most of us, for instance, would not want people in poorer countries to be poisoned by landfills of our electronic waste. But they are not aware of it. There is also too little knowledge about how valuable certain components of devices (such as mobile phones) are and that they should not simply be disposed of as rubbish.

# Tell us your vision of the world in ten years' time.

I work with much longer timescales and make a distinction between the possibility of an environmental collapse, a "Brazilianisation" of the world – a type of global (neo-) feudal structure – and a world in balance, in other words a world with a "common wealth" of ten billion people. The latter requires a global environmental and social market economy to be implemented, with a Global Marshall Plan<sup>1</sup> as an interim step.

The question is which of the scenarios I described the world will choose. If this process

leads us towards better "global governance", we will have a chance of altering industrial society in the long term. If we do not manage that, we will march towards a two-class society in which most people in the OECD states, who are currently counted among the rich in the world, will become considerably poorer and will have to cut down their consumption substantially as a result. In ten years, it should be much clearer than now to see in which direction the world is moving.

<sup>1</sup> The goal of the Global Marshall Plan Initiative is to develop humanity on the basis of justice, solidarity, sustainability and dialogue between the cultures and religions. You can read more about the various scenarios of global development in the printed version of Franz Josef Radermacher's talk at the Greenforum 2009

(www.swicorecycling.ch > Greenforum).

#### Prof. Dr Franz Josef Radermacher

Professor Franz Josef Radermacher (born 1950) has a doctorate in mathematics and economics. He has been Professor of Information Technology at the University of Ulm and Head of the Research Institute for Applied Knowledge Engineering (FAW/n) in Ulm since 1987. Professor Radermacher campaigns for fair globalisation. He is one of the founders of the Global Marshall Plan Initiative, the goal of which is to develop humanity on the basis of justice, solidarity, sustainability and dialogue between the cultures and religions.



# 2009 brought many changes

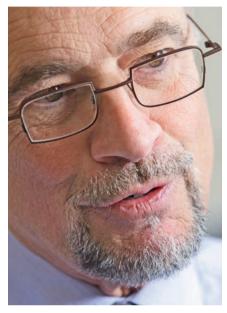
Eric Hubacher has been a member of the Environmental Commission for ten years, making him a veteran of the organisation. He looks back with satisfaction – and forward with anticipation.

As the director and co-owner of ESAG in Wädenswil, Eric Hubacher has good reason to work in the Environmental Commission. "We have to deal with the environment in a sustainable way, use resources sensibly, and dispose of and recycle disused equipment in an environmentally friendly way. That is the core responsibility of the Environmental Commission - and that is why I am involved." Eric Hubacher is particularly proud of SWICO Recycling's collection results; the EU defined a collection target of four kilos (of electronic waste and white goods) per capita for 2009. Switzerland easily achieves 14 kilos (seven kilos of which are electronic waste). "The proportion of disused equipment returned in Switzerland is higher than in any other country, and that is partly thanks to SWICO Recycling." The Environmental Commission has built up an efficient organisation in the 14 years of its existence. And that is the only way it will be possible to cope successfully with the future. Furthermore, a Commission, like any organisation, must remain alert, develop, network, and modernise. Eric Hubacher says, "I know of no board of directors that is as dynamic as the SWICO Environmental Commission."

## Opening up of market and communication

To the question of which issue dominated 2009, Eric Hubacher says, "That was certainly costs – the logistics and recycling costs. Specifically I'm talking about the dissolution of the regions and the new recyclers' contracts." By doing this, according to Eric Hubacher, SWICO Recycling changed something that was almost sacred – and dared to step away from protected regions to an open market.

Eric Hubacher is proud of what the Environmental Commission has achieved and its





Eric Hubacher: "I am proud of what the Environmental Commission has achieved."

pioneering spirit. The fundamental structure of the Commission is stable and constant. And the change of chairman also brought a change of generation. The Environmental Commission has consistently become more modern and expanded its presence. "SWICO is more self-assured, which is also obvious from the new website, the Activity Report and the corporate brochure. We are now demonstrating who we are and what we do - in other words we communicate more openly." That is very noticeable internally. "Nowadays we have to work in a more concentrated way and meet in subcommittees every three months. And there are monthly telephone and video conferences to discuss the latest developments." The agenda is much fuller, and more tasks are assigned. And cost awareness has risen massively.

Looking to the future, Eric Hubacher says, "We will have to cooperate more on many levels – new partnerships will be developed and new channels opened up. The Environmental Commission is moving forward and I am very much looking forward to seeing how SWICO Recycling's successful system develops."

## Members of the Environmental Commission

Paul Brändli, Chairman
Roberto Vitaliano, ALSO Schweiz
Brigitte Schmieder, Canon
Alex Lovis, Dell
Eric Hubacher, ESAG
Rolf von Reding, Hewlett-Packard
Hans Walker, IBM
Roland Vannay, Motorola
Reiner Wolter, Sun Microsystems
Christoph Schweizer, Xerox
Stephan Hildebrand, Novis (new)
Dominik Wirth, Brack Electronics (new)

# SWICO Recycling sticks to its guns

At 15 percent, the proportion of mobile phones that are returned in Switzerland is too low. Therefore SWICO Recycling launched initiatives in schools and among the general public in 2009 to increase this quota.



K. Hohn: "After the workshop, none of the kids will throw away its mobile phone."

Karen Hohn teaches grade five and six at Aarwangen primary school. In May 2009, the young teacher was one of several teachers to run a project week with recycling, specifically waste paper, glass, PET plastic and mobile phones, as the topic. She and two colleagues organised a workshop on the life of a mobile phone. "90 percent of our pupils own a mobile phone. The children were delighted because they were allowed to take their mobile phones into the workshop. Usually there is a strict ban on mobile phones at school." Karen Hohn's aim was to raise the children's awareness of responsible mobile phone consumption and the valuable components in the phones and to show them how important it is to recycle these materials. Luana, age 12, recalls, "There are a lot of small parts in a mobile phone such as a green card with a lot of things on it. All of that can be used again. I didn't know that before." Linn, age 11, adds, "You mustn't throw away an old mobile phone, you have to take it back to where you bought it or to a collection point." SWICO Recycling has developed learning modules and training documentation<sup>1</sup> for mobile phone recycling in cooperation with the Pusch foundation for practical environmental protection in Switzerland. Karen Hohn particularly appreciates the way in which the subject is broken down into the topics raw materials, recycling and consumption.

#### Mobile phones are like diaries

The things that amaze children do not seem to work very well yet for adults. Karen Hohn organised a mobile phone collection campaign to complement the recycling project week but she is a little disappointed with the result. "We had reckoned on collecting 200 old mobile phones, but we only got around 50." Aarwangen was one of 300 Swiss communities with a SWICO Recycling container. A chocolate mobile phone was on

offer for every mobile phone that was returned. Karen Hohn says, "A mobile phone seems to be more than a technical device; people have a personal relationship with it. It's like a small diary with text messages and photos on it, and people are more reluctant to part with them." The teacher would like to tackle the issue of mobile phone recycling again and already has a number of creative ideas. Something to look forward to!

<sup>1</sup> Training documentation for teachers may be ordered for free at www.swicorecycling.ch. Free downloads are also available for the general public.

# Over 1.7 tonnes or 14,000 old mobile phones collected

Around 300 cities, communities, schools, associations and companies all around Switzerland took part in the "True Values" national environment day. Many organisations got involved in SWICO Recycling's mobile phone collection campaign. As a result more than 1.7 tonnes or 14,000 mobile phones found their way into the special collection containers. To put this in context. 7,000 mobile phones are sold in Switzerland every day; in other words the same number of phones was returned as are sold in two days. However, there are still 8 million old phones lying around unused in Swiss households. SWICO Recycling is campaigning strongly to continue to raise awareness among the population. Resources need to be conserved and the environment protected. The planned measures are intended to have an effect on various levels - in communities, schools, the media and in the commerce industry. Details are available at www.swicorecycling.ch/handyrecycling

# Recycling without borders

SWICO Recycling is making progress: commodity prices have been indexed. Regions have been dissolved to open up the Swiss market to all authorised recyclers. A lot has been going on in 2009.

The prices of raw materials react like shares on the stock exchange; they were flying high in the summer of 2008 - and then they collapsed. This was a rude awakening for many recyclers because they had bought materials at the top of the market and held onto them in the hope that revenues would continue to rise. Cold hard reality brought value adjustments. For SWICO Recycling, this was the time to replace the old fixedprice model with an indexation model, in agreement and cooperation with the recyclers. A collapse and realignment like this is a challenge for everyone - and needs to be tackled skilfully and tolerantly. That is why SWICO Recycling called on the services of recycling coach Andreas Tonner. "SWICO Recycling wanted a solution that was a partnership and commissioned me to develop an indexation model with the recyclers so that the risk was spread evenly between SWICO Recycling and the waste disposal organisation." The indexation model came into force on 1 July 2009. It also means that disposal and recycling are no

longer a static structure; they are in a constant state of flux. The indexation model allows SWICO Recycling to take this development into account.

#### Regions have been dissolved

The 36 regions for recyclers which were previously permanently allocated were dissolved in 2009. SWICO Recycling contract partners can now operate throughout Switzerland – the whole of the Swiss market is open to them. This all enhances competition. Andreas Tonner says, "Anyone wanting to make a mark in the Swiss recycling market must be up to the job. Innovators can now grow and fully develop their market potential." He compares the events in the 2009 year of negotiation with rock 'n' roll: "There's a lot going on, and new things are fun, they are a breath of fresh air and energy – just like rock 'n' roll."

#### Recycling at the highest level

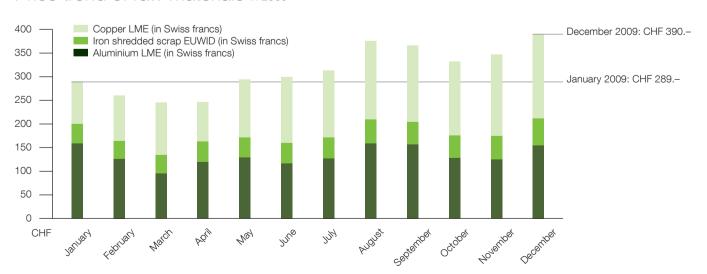
Recyclers and waste disposal organisations that work with SWICO Recycling have to

meet the highest quality standards; they need a great deal of specialist knowledge, a professional infrastructure and a clear business strategy. And they are tested by Empa. Only then are they eligible to bid in the SWICO Recycling process. This procedure has been simplified with a processing regulation that has been developed for all recyclers in cooperation with the SENS Swiss Foundation for Waste Management and sets a single standard that applies to all.

#### A look ahead

The indexation model has been implemented, the regions have been dissolved and the new contracts signed. All of this will be monitored and developed by the practitioners' committee, among others. This body collects ideas from Convention signatories, collection points, recyclers, logistics providers, Empa and SWICO Recycling. The result is dynamics and occasional frictions—which leads to innovation and progress. All in all the best conditions for the further development of SWICO Recycling.

#### Price trend of raw materials in 2009



With the new indexation model, SWICO Recycling shares the recyclers' risk of price fluctuations.

# Plastics: recycling or disposal?

Empa is working with SWICO Recycling investigating the conditions under which plastics from electronic waste can be recycled.



There is still too much plastic ending up in incineration plants.

The 52,623 tonnes of electrical and electronic waste that were disposed of in 2009 contained approximately 23 percent plastics. In Switzerland, the majority of these plastics end up in incineration plants. How-

ever, there is an increasing trend towards recycling due to the rising quantities and disposal costs.

From an environmental perspective, this is a sensible alternative to incineration provided contaminated plastics can be separated. If the separation is not clean, one of the risks is that materials that are hazardous to the environment and to health, such as brominated flameproof material, could end up being distributed in new products. That is why maximum concentrations of heavy metals and brominated flameproof material are defined in the European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive).

If the goal of sensible recycling is to be achieved, we need to know how pollutants are distributed across the various products. As these questions are of pan-European significance, the investigations that SWICO Recycling and the SENS Swiss Foundation for Waste Management have commissioned Empa to carry out have been extended to the entire area covered by the European Association of Electrical and Electronic Waste Take Back Systems (WEEE Forum). Empa is therefore analysing plastic samples from around 60 different recycling companies. The results are expected in mid-2010.

# The waste disposal challenge of flat-screen TVs and monitors

Empa is analysing the quantity and composition of returned flat-screen TVs and monitors and drafting requirements for future disposal.

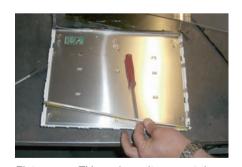
The transition from cathode ray tube (CRT) to flat-screen technology is now also clearly visible in waste disposal; the volume of returned LCD monitors rose from 85,000 in 2007 to over 312,000 in 2009.

In 2003 49,000 flat-screen TVs (LCD and plasma) were sold in Switzerland; in 2007 that figure was 563,000. The number of CRT televisions sold fell from 308,000 to 17,000 over the same period. Whilst in 2003 only around one in three PCs sold was a laptop, in 2008 58 percent of all PCs sold were laptops. The quantity of flat-screen TVs and monitors to be disposed of will grow quickly over the next few years. This will lead to new waste disposal problems: the backlighting in LCD flat-screen TVs and

monitors contains mercury. The very fine glass tubes can break even under a minimal mechanical stress. Mercury-free LED backlighting now exists, but it has not yet been launched across the entire market.

Empa is running a project to examine future quantities and the composition of the flat-screen TVs and monitors that are being taken back into the SWICO Recycling system.

Moreover, the requirements for manual dismantling and mechanical processing or thermal recovery should also be defined in cooperation with the recycling companies and the official authorities so that future waste disposal can be designed to be as ef-



Flat-screen TVs and monitors contain toxic substances such as mercury.

ficient and environmentally friendly as possible. The results of the investigations are expected towards the end of 2010.

# Thank you!

538 companies in office/information technology, consumer electronics, communication, the graphics industry, measuring and medical technology have now signed the SWICO Recycling Convention.

The SWICO Recycling success story continues thanks to our Convention signatories as well as our recycling contract partners Immark AG, Reonik Recycling AG, RUAG Components AG – Environment, Thévenaz-Leduc SA, Consortium Cablofer – RDS, Thommen AG – Ceren AG, Bühlmann Recycling AG, Solenthaler Recycling AG, our logistics partner Cargo Domizil AG, the Federal Office for the Environment, the 600 SWICO Recycling collection points, over 6,000 retailers and wholesalers and the Empa test centre.

As Convention signatories, the following companies are actively involved in environmental protection and undertake to dispose of their electrical and electronic equipment with SWICO Recycling.

3M (Schweiz) AG A A. Koller AG • A. Marcandella AG • Aastra Telecom Schweiz AG • ABC DENTAL AG • ABC SOFTWARE GmbH • ACCO Deutschland GmbH & Co. KG • Acer Computer (Switzerland) AG • ad notam ag • ADIVA Computertechnologie AG • ADRENIO GmbH • Aduno SA • AG Neovo Technology B.V. • Agfa Graphics Switzerland AG • Agfa HealthCare AG • Albis Technologies AG • Alltron AG • AlphaSat GmbH • ALSO Schweiz AG • Alto Hifi AG • AM Digital AG • AMO Switzerland GmbH • Andres Audio • Anthos Schweiz AG • APC by Schneider Electric • Apple Sales International • Architronic AG • ARP Datacon AG • Ascom (Schweiz) AG Security Solutions • ASL Electronic AG/SA • Atena Distribution AG • Audio Tech KST AG • Audiotools by Braintools AG • Autec GmbH • Autronic AG • AV Distribution AG • Avalon Computer AG • Avaya Switzerland GmbH • Avcom Distribution GmbH • Avision AG • Axavis B 84M Schweiz AG • B&W Group (Schweiz) GmbH • Bader Versand Schweiz AG • Balcar Electronics AG • Balzo AG • Bang & Olufsen AG • Baumann Koelliker AG • Bausch & Lomb GmbH • Beletec AG • Belinea AG • BELSAT AG • BenQ Deutschland GmbH, Hamburg • Berlinger & Co. AG • Bestprice Audio Video Est. • Beta Solutions GmbH • Betzold Lernmedien GmbH • Bixi Systems • Bleuel Electronic AG • Blue Coat Systems International SARL • Boll Engineering AG • Bosch Sicherheitssysteme GmbH • Bose AG • Bourquin Logistique Dentaire Sarl • Brack Electronics AG • Brecom Betriebs AG • Brigitte Geschenke AG • Brocade Communications Switzerland Sarl • Brother (Schweiz) AG • Bull (Schweiz) AG C C&O Distribution • Cablecom GmbH • CAD Partner GmbH • Canon (Schweiz) AG • Carfa AG • Carotec Schatz AG • CeCoNet AG • CED Consumer Electronic • Chauvin Arnoux AG • Chromos AG • Cisco Systems International BV • Cisco Systems-Linksys • CL-Electronics GmbH • COLAG AG • Coltène/Whaledent AG • ComBridge AG • Comerco GmbH • Compex Médical SA • Computer Controls AG • Comsys AG • Comtronic GmbH • Conforama Suisse • Conrad Electronic AG • Coop • Cornelia Versand GmbH • CPP AG Computer Präsentations Partner • Cray Inc. • CREALOGIX E-Payment AG • Cropmark AG • CTA Energy Systems D Damovo Schweiz AG • Darius HandelsgmbH • Data Store AG • Dell GmbH • DeltaNet AG • DEMA DENT AG • Dental 2000 SA • Dental Concept • Dental Technique Sàrl • Dentatech Handels AG • Devillard SA • Diebold GmH Selbstbedienungssysteme (Schweiz) GmbH • Digana AG • Digitec AG • Dionex (Switzerland) AG • Distrelec Bereich der Dätwyler Schweiz AG • DKB Household AG Consumer • D-Link Schweiz GmbH • Dr. W.A. Günther Audio Systems AG • Dreamcom Corporation • Dürr Dental AG • Dynavox Electronics SA E eb-Qual SA • ECS International Switzerland SA • Edition text&bild GmbH • Edwards Lifesciences AG • Egli Fischer & Co. AG • Einstruction • Eizo Nanao AG • Elbro AG • Elcoma AG • ELCONEX AG • ElectronicPartner Schweiz AG • Elektron AG • EMC Computer Systems AG • Engelberger AG • ESAG innovative services • Esselte Leitz Switzerland GmbH • Eurotronic Establ. F5 Network Ltd • Facora AG • FAG Graphic Systeme S.A. • FARO EUROPE GmbH & Co. KG • Fellowes GmbH • Fenwal Europe sprl • FlexDSL Telecommunications AG • Frama Suisse AG • Freecom Technologies AG • Fritz Schumacher AG • Fujifilm (Switzerland) AG • Fujitsu Technology Solutions AG • Fusionio • Fust AG G Galexis AG • GE Consumer & Industrial SA • Genesis Technologies AG • Getronics (Schweiz) AG • ghe-ces electronic ag • Globalstar Europe Satellite Services Ltd • GMC Trading AG • GOP AG • Graphax AG • GraphicArt AG H. Schneider Handels AG • Hama Technics AG • Hand Held Products • Harman Deutschland GmbH • Häubi AG • HB (Switzerland) AG • Healthco-Breitschmid AG • Heer Musik AG • heico Dent • Heidelberg Schweiz AG • Heidenhain (Schweiz) AG • Heinrich Heine Handelsgesellschaft AG • Hermann Kuhn AG • Hewlett-Packard (Schweiz) GmbH • Hi-Fi Studio Sigrist • Hitachi Europe GmbH • Honeywell AG • Horn Distribution (CH) AG • Hotline SA • Hulaas IT Solutions • Hunziker AG Thalwil IBC Retail Systems S.A. • I-Bit Pro AG • IBM Schweiz AG • Ifrec SA • Igepa Adoc SA • ImproWare AG • Ineltro AG • InfoPrint Solutions Company • Ingram Micro GmbH • INNOMATEC GmbH • Inputech AG • Interact Consulting AG • Intercard AG • Interdiscount AG • Interfunk AG • iSpeech AG • ITRIS Trading AG JET Schweiz IT AG • Joah Cooperation AG • John Lay Electronics AG • JORDI RÖNTGENTECHNIK AG • Jumbo Markt AG • JVC Professional Europe Ltd. • JVC Schweiz AG K Kablan AG • KALADENT AG • Kavo Dental AG • KDS Distribution AG • KESO AG • Kodak GmbH • Koelliker Büroautomation AG •

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AG • Musica Nova AG • Musik Meyer AG • Musikvertrieb AG • Myotest SA N NCR (Schweiz) GmbH • Nebus AG • NEC Philips Unified Solutions Switzerland AG • Neopost AG • Netstream AG • Netto24/Microspot.ch • Newspeed AG • Nexgen AG • NIKE (Switzerland) GmbH • Nikon AG • Nimex AG • Niwotron AG • Nokia Austria GmbH • Novatel Wireless Inc. • Novia AG • Novis Electronics AG Obrecht Technologie AG • Océ (Schweiz) AG • OF Schweiz AG • Off-Grid Systems GmbH • Office Factory AG • OKI Systems (Schweiz) • Olympus Schweiz AG • Omni Ray AG • Omnisec AG • Openstorage Schweiz AG • Orange Communications AG • Ott + Wyss AG • Otto Mathys Cashtec AG P P. Wyss Photo-Video en gros • Palm • PANalytical B.V. • Panasonic Italia • Panatronic (Schweiz) AG • Pansoft AG • Parna SA • Pataco AG • Patton-Inalp Networks AG • Paul Stoffel Data AG • PayTec AG • PC Engines GmbH • PC-Ware Systems (Schweiz) AG • Pentax (Schweiz) AG • Perrot Image SA • Philips AG • Philips AG Healthcare • Phonak Sounds AG • Piega SA • Pixel Systems AG • Plusmusic AG • Pocketmedia AG • Polaroid Trading BV • Polyfon Distribution AG • Portacomp AG • PowerData SA • Prestige TV Schweiz GmbH • Primelco System Device AG • Print & More Competence AG • Print Tech Plus AG • Print-Fix Drucktechnik AG • Pro Idee Catalog GmbH • Proditec AG • Profot AG • Provicon GmbH • PWS Systèmes Sàrl Q Qonix SA • Qubica AMF • Quelle Versand AG • Radio Matériel SA • RC Services • RCD AG • Rechsteiner Consulting R Reco Electronic AG • REDFOX AG • Rein Medical Systems AG • René Faigle AG • René Koch AG • Revamp-it • Revox • RICOH SCHWEIZ AG • Roadstar Management SA • Rodata AG • Rodent AG • Roland (Switzerland) AG • ROLAND DG Benelux NV • Ross Video Limited • Rotronic AG • Rotronic Micro AG S Sacom SA • Safenet Technologies Schweiz AG • Sagem Communications Austria GmbH • SALA FORNITURE DENTARIE SA • Samsung Electronics Austria GmbH • Sanford (Schweiz) AG • Sanyo Electric Service (Europe) AG • SAP Electronic AG • Schefer Informatik AG • SDS Music Factory AG • Securiton AG • Seitz Phototechnik AG • semielectronic ag • SERTRONICS - Service und Logistik AG • Seyffer CCW AG • Sharp Electronics (Schweiz) AG • Sicon Socomec AG • Siebenhengst Walti Aellig Gresch • Siemens Enterprise Communications AG • Siemens Gigaset Communication Schweiz GbmH • Siemens Schweiz AG, Civil and National Security • Siemens Schweiz AG, Industry Sector, Building Technologies • Silentsoft SA • Silicon Graphics GmbH • Sim Eletronics • Simpex IT-Solutions AG • sinamatt ag • Sinus-Technologies • Sirona Dental GmbH • Sistrade Sàrl • SIX Card Solutions AG • Skyvision GmbH • Sony Computer Entertainment Switzerland AG • Sony Ericsson • Sony Overseas SA • Spandex AG • St. Jude Medical (Schweiz) AG • STAG ICP AG • Steffens AG • STEG Computer GmbH • Stilus SA • Studerus AG • Sun Microsystems (Schweiz) AG • SUPAG Spichtig und Partner • SUPRAG AG • Swisscom (Schweiz) AG • Swissphone Wireless AG • Swissvoice AG • Systeam Schweiz GmbH TA Triumph-Adler Visinfo AG • TBM AG • Tchibo (Schweiz) AG • Tchibo direct GmbH • TCPOS SA • Tecan Schweiz AG • Tech Data (Schweiz) GmbH • TechniSat Digital GmbH • Technomag AG • Telanor AG • TELGO AG • Telion AG • Teradata (Schweiz) GmbH • Terra Wortmann Schweiz GmbH • Texas Instruments ITC • Thomson Broadcast & Multimedia AG • TI-Dental Service SA • Timeless Products GmbH • TIPE GmbH • TOM Elektronik GmbH • Tom Tom Sales BV • Toshiba Europe GmbH • Toshiba Tec Switzerland AG • Toys «R» US AG • transtec Computer AG • TRIGRESS Security AG • Turnkey Communication AG • Tyco Fire & Integrated Solutions Schweiz AG • Typon Service AG Ubi Games SA • Ultim Trading Top-D • Unisys (Schweiz) AG • Upgrade Solutions Ltd. (USL) • VAC René Junod SA • Varian AG • Vedia SA • Veeco Instruments • Verizon Sweden AB V Vestel Germany GmbH • Videotronic AG • Visopta AG • Vivanco Suisse AG W Waser & Co AG • Waser Bürocenter AG • Wifx Sarl • Wilhelm Sihn AG • Wilux Print AG • Wincor Nixdorf AG • Wycom AG • Wyscha Computer AG X Xerox AG Y Yamaha Music Europe Gmbh • YourWellness AG • Z-Audio Animatec AG Z ZETA DENTAL SA • Ziil Informatiklösungen GmbH • ZTE Sweden "The SWICO Recycling return system is reliable, based on solidarity and efficient. We can only be successful together with our partners. Thank you for your confidence!"

Paul Brändli, Managing Director of SWICO Recycling



# The flow of materials reflects consumer behaviour

Empa analyses how new trends in the world of electronics are reflected in SWICO Recycling's flow of materials a few years later.

SWICO Recycling handled 52,623 tonnes of waste electronic equipment in 2009, a rise of 3.5 percent compared to the previous year. This rise is similar to the rise from 2007 to 2008.

The greatest increase was in the volume of LCD monitors collected (+122.3%). This shows that a lot of first-generation equipment is already showing up in recycling. Looking at the overall volume, however, it can be seen that CRT monitors (15,214 tonnes) still far outweigh LCD monitors (1,987 tonnes) and even increased again in 2009. The volume of laptops (+16.6%) and PCs/servers (+14.5%) taken back also increased noticeably again.

Tests are being carried out in the recycling companies, under the supervision of Empa monitoring experts, to determine the com-

position of the individual categories of equipment. Equipment in a particular category is collected and then dismantled manually and/or by machine. A mixture of SWICO Recycling equipment such as printers, laptops, LCD computer monitors and, for the first time, LCD TVs was examined. There is very little difference in the composition of flat-screen computer monitors and flat-screen TVs: the LCD TVs had a little less plastic but more printed circuit boards and pollutants than LCD computer monitors.

Just under half of the fractions generated are metals such as iron, aluminium, copper or chromium steel. The second-largest fraction, accounting for around a fifth, is plastics and CRT glass or LCD modules. Printed circuit boards are insignificant in terms of volume, but they contain various precious metals (including gold, silver and palladium) and are therefore of particular interest in terms of recycling the materials.

Components containing pollutants, such as batteries, capacitors or components containing mercury altogether make up less than one percent. Nevertheless, one of the most important jobs for the recycling companies is to ensure that these components are separated and conveyed into a special recycling or waste disposal process.

## Quantities collected by device type (A and B signatories)

	Quantity	Average weight (in kilos)	Metals (in tonnes)	Plastics (in tonnes)	Mixed metals/ plastics (in tonnes)	Cables (in tonnes)	Glass and /or LCD modules (in tonnes)	Printed circuit boards (in tonnes)	Pollutants (in tonnes)	Others³) (in tonnes)	<b>Total</b> (in tonnes)	Increase/ decrease from 2008
CRT television sets	334,352	29,62	972	2,207	260	13	6,440	_	12	-	9,904	+23.1%
CE, mixed <sup>1)</sup>	995,723	4,84	2,642	988	707	130	12	93	58	186	4,816	-7.9%
CRT monitors	298,057	17,82	521	1,183	140	7	3,453	_	6	-	5,310	-8.6%
LCD monitors	312,844	6,36	850	476	_	8	500	138	6	9	1,987	+122.3%
PCs/servers	481,486	14,01	5,550	388	18	207	_	563	22	-	6,748	+14.5%
Laptops	241,965	3,2	299	187	58	9	67	115	30	7	772	+16.6%
Printers	497,861	9,93	1,866	2,722	176	24	5	68	2	83	4,946	+4.7%
Large equipment/copiers <sup>2)</sup>	23,952	124	2,329	222	210	44	34	77	2	52	2,970	-8.4%
Other equipment	_	-	8,328	3,111	2,227	410	38	292	176	588	15,170	-6.7 %
Total in tonnes			23,357	11,484	3,796	852	10,549	1,346	314	925	52,623	+3.7 %
Total in percent			44.4 %	21.8 %	7.2%	1.6 %	20.0 %	2.6 %	0.6 %	1.8%		

<sup>1)</sup> Consumer electronics, mixed, excluding TVs.

<sup>&</sup>lt;sup>2)</sup>Currently includes large copiers only.
<sup>3)</sup>Packaging and other waste, toner cartridges.

#### CRT television sets

Metals		9.8%
Plastics		22.3 %
Metal-polymer composites		2.6 %
Cables		0.1 %
Glass		65.0 %
Pollutants		0.1 %

#### CE, mixed1)

Metals	54.9%
Plastics	20.5 %
Metal-polymer composites	14.7 %
Cables	2.7 %
Glass	0.2%
Printed circuit boards	1.9%
Pollutants	1.2%
Other <sup>3)</sup>	3.9%

#### **CRT** monitors

Metals		9.8%
Plastics		22.3%
Metal-polymer composites		2.6%
Cables		0.1 %
Glass		65.0%
Pollutants		0.1 %

#### LCD monitors

Metals		42.8 %
Plastics		24.0 %
Cables		0.4%
Glass		25.2 %
Printed circuit boards		6.9%
Pollutants		0.3%
Other <sup>3)</sup>		0.5%

#### PCs/servers

Metals	82.2%
Plastics	5.7 %
Metal-polymer composites	0.3%
Cables	3.1 %
Glass	8.3%
Pollutants	0.3%

#### Laptops

Metals		38.7 %
Plastics	_	24.2 %
Metal-polymer composites		7.5 %
Cables		1.2 %
Glass		8.7 %
Printed circuit boards		14.9%
Pollutants		3.9 %
Other <sup>3)</sup>		0.9%

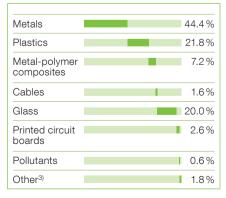
#### **Printers**

Metals	37.7 %
Plastics	55.0%
Metal-polymer composites	3.6%
Cables	0.5%
Glass	0.1 %
Printed circuit boards	1.4 %
Other <sup>3)</sup>	1.7 %

### Large equipment/copiers<sup>2)</sup>

Metals	78.4%
Plastics	7.5 %
Metal-polymer composites	7.1 %
Cables	1.5 %
Glass	1.1 %
Printed circuit boards	2.6%
Pollutants	0.1 %
Other <sup>3)</sup>	1.8%

#### Total recycled components



Source: Roland Hischier, Empa

Onsumer electronics, mixed, excluding TVs.
 Currently includes large copiers only.
 Packaging and other waste, toner cartridges.

## Trend in signatories

#### Convention signatories

As of 31 December 2009 SWICO Recycling has 538 Convention signatories from the areas of information technology, office electronics, consumer electronics, communications, dental equipment, photographic equipment, and measuring and medical technology.

Again, two A signatories decided to become B signatories in future due to a lack of their own returns. The minimum billing amount of CHF 500 introduced in 2008 again resulted in resignations of signatories. The resignation of Convention signatories with revenues under CHF 500 from Advance Recycling Fees, mergers and business failures resulted in 51 Convention signatories leaving the system. On the other hand, 44 new Convention signatories were acquired in 2009.

By division Since 1.4.1994	A signatories	B signatories	Total
1994	36	0	36
1995	41	19	60
1996	44	24	68
1997	48	35	83
1998	50	51	101
1999	51	75	126
2000	49	100	149
2001	44	159	203
2002	43	207	250
2003	40	242	282
2004	34	295	329
2005	30	341	371
2006	26	445	471
2007	23	553	576
2008	20	505	525
2009	18	520	538

50
31
11
4
4

#### Share of costs

B signatories Expenditure as percentage of total costs	2009	2008
Recycling hardware	42.2	43.9
Logistics	29.3	26.4
Collection points	12.4	11.4
Packaging disposal	5.7	9.9
ADF on batteries	2.1	2.7
Audits	1.8	1.6
PR work	4.0	1.5
Administration	2.5	2.6

## Source of goods

#### 55 % of the total quantity recycled

i.e. 28,816 tonnes of electronic waste, were disposed of by private households via collection points and retailers in 2009.

Business customers	45 %
Private households	55%

## Cargo Domizil transport volume

#### Logistics partner of SWICO Recycling

41% of the total volume of electronic waste was transported by Cargo Domizil. The remaining 59% was delivered by the recycling partners in cooperation with local hauliers. At collection events, it is the end consumers themselves who bring the goods directly to the recycler.

CDS Cargo Domizil AG	2009	2008
Tonnes transported per year	21,452	24,138
Pallets transported per year	89,718	101,874
Shipments per year	24,157	25,991
Shipments per day	97	104
Original weight per pallet in kilos	239	237
Number of online orders	27,636	32,896
Number of online orders per day	111	132
Proportion of total volume	41 %	48 %

#### Quantities

#### Increasing quantities despite the economic crisis!

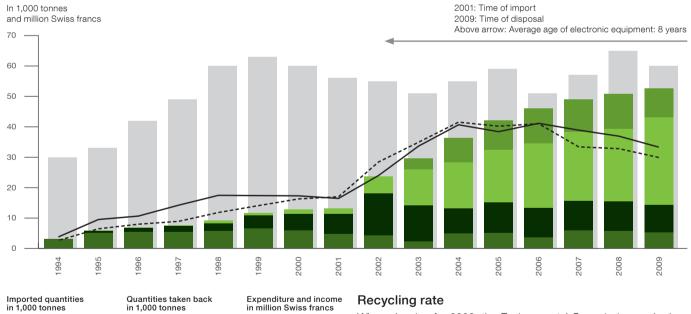
The increase in quantities taken back in 2009 was 1,870 tonnes; that is a rise of 3.68 %. A total of 52,623 tonnes of electronic waste was taken back.

Quantities taken back (in tonnes)	Manu- facturers	Retailers	Collection points	Com- panies	Total
1998	5,838	2,439	967	-	9,244
1999	6,631	4,192	871	-	11,694
2000	5,920	5,443	1,418	-	12,781
2001	4,772	6,565	1,879	-	13,216
2002	4,284	13,839	5,570	_	23,693
2003	2,270	11,895	11,758	3,700	29,623
2004	4,900	8,309	15,100	8,100	36,409
2005	5,054	10,108	17,268	9,687	42,117
2006	3,687	9,677	21,198	11,521	46,083
2007	5,887	9,812	22,567	10,793	49,059
2008	5,537	9,704	23,346	12,166	50,753
2009	5,286	9,002	28,816	9,519	52,623

By divisions (in tonnes)	2009	2008
Office electronics/information technology/ security technology	24,994	24,969
Consumer electronics/music	25,841	24,117
Communication	1,624	1,510
Photographic equipment	74	81
Dental equipment	90	76
Total	52,623	50,753

By divisions (in percent)	2009
Office electronics/ information technology/ security technology	47.5
Consumer electronics/ music	49.1
Communication	3.1
Photographic equipment	0.1
Dental equipment	0.2

## Expenditure, income and quantity growth



## Imported quantities in 1,000 tonnes Imports

## 10% Manufacturers

Retailers 55% Collection points 18% Companies

- \_\_ Income (2009: 33.3)

When planning for 2009, the Environmental Commission worked on the basis of minimal growth of max. 5% and the quantities taken back at around the previous year's level. With a result of 52,623 tonnes, the 50,000-tonne threshold has been passed for the second time. As the average age of the equipment is 8 years, we are comparing the quantity collected with the quantity imported 8 years ago. For 2009 this means that we are comparing the 52,623 tonnes collected with the quantity imported in 2001 of 57,000 tonnes. The proportion taken back in relation to the quantity imported 8 years ago is therefore over 90%!

## Balance sheet as of 31 December 2009 (in 1,000 Swiss francs)

2009	2008
12,355	6,856
2,885	3,803
275	339
23,250	25,120
38,765	36,118
	12,355 2,885 275 23,250

Liabilities	2009	2008
Accounts payable	4,883	4,749
Deferred liabilities	2,104	3,379
Short-term reserves	360	_
Latent waste disposal obligation	31,418	27,990
Total liabilities	38,765	36,118

### Profit and loss account (in 1,000 Swiss francs)

Income	2009	2008
Advance Recycling Fees		
A signatories	9,557	10,199
B signatories	22,809	27,753
Other income	21	72
Financial income	939	-1,083
Total income	33,326	36,941

Expenditure	2009	2008
Staff costs	745	620
Recycling	12,695	12,930
Transport	8,817	7,772
Collection points	3,746	3,367
Disposal of packaging	1,716	2,915
Disposal of batteries	622	793
Del credere on accounts receivable	_	_
Audits, analyses, PR, operating expenses	1,757	1,691
Endowments		
Securities reserve for fluctuations	-200	2,800
Latent waste disposal obligation	3,428	4,053
Total expenditure	33,326	36,941

#### Balance sheet

The balance sheet total increased by CHF 2.6 million to CHF 38.8 million compared with the previous year as a result of the increase in the latent waste disposal obligation. On the assets side, liquidity almost doubled. In addition to the surplus (increased waste disposal obligation) a regrouping of the financial assets and lower accounts receivable contribute to this. The financial assets are booked on the closing date at market rates. A reserve for fluctuations of 10% of this value is taken into account. As at the end of 2009, the latent waste disposal obligation was CHF 31.4 million, which corresponds to 104% of the recycling expenditure for 2009.

#### Income

Turnover fell by CHF 3.6 million to CHF 33.3 million compared with the previous year. One reason for this is the effect of the reduction in ARF that took effect on 1 January 2009 (e.g. MP3 tariff from CHF 1.- to CHF 0.07). Some of this was offset by the improved performance of the financial assets.

#### Expenditure

On the expenditure side, higher transport costs were offset by lower expenditure for disposal of packaging. The higher expenditure on PR work arose from special events such as the mobile phone campaign day (see page 10) and SWICO Recycling's 15th anniversary. As a result of the lower holdings of securities, the reserve for fluctuations was reduced by CHF 0.2 million. The latent waste disposal obligation was increased by CHF 3.4 million.

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Some contributions are available as podcasts on www.swicorecycling.ch

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From left: Dennis Lackovic, Reto Grunder, Sibylle Gaudy, Paul Brändli, Roland Habermacher, Antonella Rattà, Roland Vannay.

We will continue to be dedicated to working for you and the environment in 2010.