

# KNOW YOUR LIFESTYLE



INTRODUCING SUSTAINABLE CONSUMPTION IN SECOND CHANCE EDUCATION

## MOBILE & SMARTPHONE



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# IMPRESSUM

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DVV International

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# I. INTRODUCTION

In the age of globalisation, the world is moving closer together. And the buzzword globalisation does not only adhere to the boundless flow of information and capital but also the merging of cultures and a joint responsibility for the future. At the latest with the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 it became clear that dwindling resources, growing environmental problems and increasing social inequalities affect the entire world and therefore all governments and societies are encouraged to bear responsibility for a viable and sustainable development.

Therefore, as well the governments of the European Union committed themselves to the basic dimensions of global sustainable development recognised in Rio de Janeiro: environmental and resource conservation, social sustainability and economic viability. Therewith, the governments acknowledge that their societies are in a learning process in which

antiquated patterns of thought regarding development and underdevelopment are losing their validity and education for sustainable development must be given a more significant value. The universal responsibility of people worldwide for a socially and environmentally friendly behaviour requires a deeper understanding of the relationships between consumption patterns and the finiteness of resources, as well as an understanding of the links between consumption patterns in the countries of the northern hemisphere and the living and working conditions of people in the countries of the southern hemisphere.

## GLOBAL LEARNING

Global Learning is a possible pedagogic answer to issues of global development and questions of the future. It is an educational response that is based on the principle of sustainable development and internationally binding human rights treaties.

In this interdisciplinary approach the understanding of global economic, political, social and environmental contexts is considered as a cross-cutting issue of education - an educational concept that touches all topics.

The purpose of Global Learning is to increase the understanding of the problems of the modern world and its consequences, both locally and globally. Global Learning encourages learners for a change of perspective and a reflection of their individual patterns of thought and behaviour. Such learning is important because it helps people to recognise their own role and the individual and collective responsibility they have as active members of a global society in regards to efforts for social and economic justice for all and the protection and restoration of ecosystems on our planet.

Global Learning is not a strict and regulated educational programme, but rather an open, preliminary and multi-faceted

approach of contemporary general education. Global Learning should be fun. It uses a variety of interactive and participatory learning methods.

Didactically and methodologically Global Learning requires teaching and learning methods which are interdisciplinary, participatory and action- and experience-oriented, because Global Learning is both promoting cognitive as well as social and practical competencies. Thus, Global Learning does not target a particular field of knowledge, but aims at acquiring key competences and skills that people - today and in the future - need to live in a responsible, solidary and sustainable manner as world citizens ("think global – act local").

"Recognising, Evaluating and Acting" and the respective interplay of these spheres of competence are promoted. Thereby, reference is made to the living environment of the learners: Even if always one has to be careful dealing with the question of one's own realistic capabilities and actual individual power, learners shall be enabled to analyse their own position in society, to form their own opinion and to actively participate in political processes.

# SUSTAINABLE CONSUMPTION

Globalisation can be found everywhere in our day-to-day lives, starting with our shirt from Bangladesh, the cup of coffee brewed with beans from Guatemala right up to our mobile phone which would not function without coltan from the Republic of Congo.

Shopping knows no closing time, because via internet we can always purchase. Consumption imparts experience. Consumption socialises, gives meaning to our life and shapes our modern lifestyle.

Consumerism is an expression of societal development and individualism. Consumption sometimes appears as natural as eating, drinking, being mobile or working.

The media and advertising affect our consumption behaviour: products, music or outfits represent a certain style. The "proper attitude to life" and the "right perception" is organised by third parties on the market: via buying the "right products". Often, social recognition and an improvement of personal status are connected to it. Thus, in the end we all buy even things we actually do not need.

In view of a constantly growing world population and limited resources on our planet, however, the question arises how in future the needs of according to estimations by the United Nations more than 9,5 billion people in the year 2050 will be met and how participation of all people in the world can be assured. Solely the consumption of households in Europe is responsible for more than a quarter of all European greenhouse gas emissions. In this share the emissions connected to the production process of the consumer goods is not even included.

This means: the consumption of products increasingly influences both the economic and social situation of the people worldwide and the state of the environment. In the production process, in the consumption and in the use of a product lays great potential for minimising the environmental impact and for reducing global injustice. The point is to recognise and to use this potential, to hold a discussion about our lifestyles and about our responsibilities also in terms of consumption.

Of course there is the principle of "stop buying" or Consumption Renunciation. This principle focusses on the

consideration whether you really need a new product or repair an old one, whether you buy a used product or make a new product by upcycling an old one.

Contrary to that, there is the concept of Sustainable Consumption (also ecological or ethical consumption). Sustainable Consumption is part of a sustainable lifestyle and a consumer behaviour itself: Buying ecologically and socially responsible products may exercise political influence on global problems. It may reduce the economic, the ecological and the social costs of our lifestyle.

A prominent example of the global dimension of purchase decisions are efforts to fair trade. Consumers should choose a more expensive good of a small producer in a developing country, thus supporting fair working conditions. As well, with a purchase decision the operating and follow-up costs of a product should be considered and decisive. This applies also to the subsequent power efficiency as well as for the reparability or the long-life cycle of a product.

Following the principle of sustainable development, consumption is sustainable if it meets the needs of the present generations without jeopardising the prospects of future generations. Sustainable consumption therefore reaches into our individual lifestyle. The sustainable consumer is the ecologically and socially responsible citizen. Sustainable consumption first of all means conscious consumption: to have a closer look and to keep in mind one's personal "overall balance". Sustainability as a quality characteristic of products should be the guiding principle for consumers as well as for the economy and the public sector in Europe.

But how can we prepare and accompany especially young people on their way into a globalised and "connected" world in terms of viable and sustainable development? How can we convey to them the knowledge about local and global developments and challenges? How can we make them aware of sustainable options for action?

The project "Know your Lifestyle – Introducing Sustainable Consumption in Second Chance Education" would like to offer particularly young adults the opportunity to have a look beyond the horizon of their own lifestyles.

## II. THE PROJECT „KNOW YOUR LIFESTYLE“

The idea for the project "Know your Lifestyle - Introducing Sustainable Consumption in Second Chance Education" was based on the fact that development education and issues of globalisation and sustainability are practically not subject of the curricula of Second Chance-education in Europe.

In cooperation with Second Chance-teachers and non-governmental organisations (NGOs) engaged in development education, the didactic materials and workshop modules in this publication on different topics of sustainable consumption such as "Renewable Energies", "Mobile Phones", "Water as a Global Good", "Global Good Production in the Textile Industry" and "Human Energy" have been compiled and developed to fill this gap.

Therefore, working meetings with teachers were organised. First teaching concepts and ideas were presented to the teachers to obtain constructive feedback and detailed information regarding the characteristics of the target group and the organisational framework of Second Chance-programmes. At a later stage, in all project countries first teacher workshops were implemented to train an extended number of teachers in the use of the materials. By means of such events the participants were enabled to work with the preliminary materials themselves, to test these and already to work on the basis of the proposed topics of development education on globalisation contexts in their courses. This way, in all project countries already a certain number of project events in Second Chance-programmes could be implemented in the course of which it was possible to obtain feedback directly from the young adults enrolled in the programmes as the final target group. It was important for us to find out whether the materials were applicable in the courses and appropriate for the target audience, whether interest on part of the participants in the topics could be sparked and whether the participants enjoyed the events and the chosen methodology. According to this experience gained, the materials could again be revised and optimised.

The aim of the project is to inform young adults

like the participants in Second Chance-programmes about the linkages between personal, local consumption and the global impact connected to it. It provides young adults the opportunity to look critically at individual consumption patterns and to develop alternative and more sustainable patterns of action.

The participants of Second Chance-programmes in Europe are rarely confronted with development issues in their daily lives. They are a special target group with particular learning needs: Most of them are young adults with a migration and/or difficult social background who may often experience merely little support for a sound education by their families. But with their upcoming entrance into working life they are in an important phase of their life. In the Second Chance-programmes they engage in order to improve their chances for their future. With the elaboration of the educational materials at hand we attempted to develop an innovative pedagogical approach for discussing the topic of sustainable consumption and issues of globalisation with participants in Second Chance-programmes. Of course, we hope that the materials will as well appeal to other actors engaged in various fields of education and that also other target groups will be able to work with them.

We are not claiming that the people participating in such events will be educated for becoming entirely informed and enlightened consumers. The events are designed to give participants an impetus for becoming aware of the topic of sustainability, of global connections and of the question of global justice, to put them in an informed position in case they should be in their future everyday lives be again confronted with the issue, and possibly to enable them to act consciously and sustainably in one or another future situation. All this without raising the admonishing trigger finger and appealing to their individual "guilty conscience". Awareness of sustainable consumption is a challenge, almost a science in itself in the face of the bulk of information and the complexity today's life is providing us with,

# THE PROJECT CONSORTIUM:

## DVV INTERNATIONAL

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DVV International is the Institute for International Cooperation of the Deutscher Volkshochschul-Verband e.V. (DVV), the German Adult Education Association. The association represents the interests of the approximately 930 Adult Education centres (Volkshochschulen) and their associations, the largest further education providers in Germany.

DVV International provides worldwide support for the establishment and development of sustainable structures for Youth and Adult Education. As the leading professional organisation in the field of Adult Education and development cooperation, DVV International has committed itself to supporting Lifelong Learning for more than 45 years. DVV International finances its work with funds from institutional and private donors.

### Our Mission

Education is a Human Right. We fight poverty through education and support development. As a globally acting professional organisation for Adult Education and development cooperation, we build sustainable systems for further education along with citizens, educational organisations and governments. Together with the people in our partner countries, we establish places for Lifelong Learning.

### The essential focus of our work:

- Literacy Education, Basic Education and Vocational Training
- Global Learning, Environmental Education and Sustainable Development
- Migration and Integration, Refugee Work, Health Education, Conflict Prevention and Democracy Education

### Local Support

We conduct educational projects for disadvantaged youth and adults, help in the set-up of educational institutions and advise partners and governments in the establishment and development of sustainable structures for Youth and Adult Education.

We cooperate with more than 200 civil society, government and academic partners in more than 35 African, Asian, Latin American and European countries. Our country and regional offices build local and regional cooperation and ensure the quality and effectiveness of our action.

### Global Partnerships

Generally, vocational, cultural and scientific education of youth and adults is a key to development worldwide. Along with national, regional and global Adult Education associations, DVV International promotes lobby work and advocacy for the Human Right to Education and Lifelong Learning. Thereby we orient ourselves on the UN Millennium Development Goals (MDG), the global Education for All (EFA) programme and the UNESCO World Conferences on Adult Education (CONFINTEA).

DVV is a member of the European Association for the Education of Adults (EAEA), the International Council for Adult Education (ICAE) and the German Commission for UNESCO (DUK).

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The Association of Adult Education Centres in Carinthia (VHSKTN) is a non-profit association with eight AECs in Klagenfurt, Villach, Spittal, Wolfsberg, Feldkirchen, St. Veit and Völkermarkt. The VHSKTN was founded nearly 60 years ago. As a traditional Volkshochschule the VHSKTN is also a member of the Association of Austrian Adult Education Centres. The Association of the Adult Education Centres in Carinthia regards itself as educational institution and is pledged to democracy, committed to the principles of human rights and independent of any political parties. For this reason the VHSKTN is opposed to any sort of anti-democratic, racist, anti-Semitic, misogynous behaviour or which discriminates against any group of people, and it is committed to counteract such tendencies.

According to the Association of Austrian Adult Education Centres the VHSKTN view education as a learning process which continues throughout life and comprehends the cognitive, affective and physical dimensions; in other words: the whole person. Its work is focused on the learners' needs and requirements, but also tries to make people aware of needs and

die kärntner  
**volkshochschulen**  
projekte

requirements they might forget about in everyday life. The trainer staff of the VHSKTN consists of more than 600 trainers, who conduct more than 2500 classes every year all over Carinthia. The head of the VHSKTN is Dr. Gerwin Müller. The pedagogical director is Beate Gfrerer. Beyond traditional classes and courses around the topics culture and society, nature and environment, economy and IT, languages, creativity and culinary art and beauty and wellness the AEC association runs more than 25 local and international projects. The key aspect of most of these projects is Second Chance, beginning from the basic educational courses, the certificate of Secondary Education and University entrance examination. The Association of the Adult Education Centres in Carinthia offers a chance for those, who fall through the cracks of society and supports people from all social classes in climbing the social ladder.

# SLOVENIAN INSTITUTE FOR ADULT EDUCATION

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Andragoški center Republike Slovenije  
Slovenian Institute for Adult Education

The Slovenian institute for Adult Education (SIAE) is the main national institution for research and development, quality and education, guidance and validation, and promotional and informative activities in the field of adult education. SIAE drafts professional bases and evaluations, and monitors the development of the adult education system, develops various non-formal and formal forms of learning, develops programmes to improve adult literacy, and pays particular attention to improving access by vulnerable groups of adults to education and learning. In doing so, it develops the necessary infrastructure to support learning, develops models for the self-evaluation of quality and the validation of prior learning, and provides professional education and training for adult educators. The SIAE informs professionals and the general public

about all of these processes and achievements, and contributes to the broader awareness of the importance and role of adult education.

### SIAE's mission in detail:

We believe education could help people in exploring their life-long question i.e. "How should I live my life?" In this way the voice of the learner needs to be heard in the curriculum. On the other hand person could not be realised out of the community. Even more - every person tends to be realised in the community. Education shall bridges those two sides of human life. The word community is derived from the Latin word "communicare" that means to communicate, to share. Communication means sharing - not only the material things, but also



knowledge, spiritual things, values, problems etc. People need to communicate. The problems they share, even the conflicts might be understood constructively when there is a place for dialogue, where human ideas, knowledge and competences, virtues and values might be exposed and discussed. Dialog means that people hear each other and try to understand each other. When people understand each other, they may be willed to construct common reality. Thus SIAE puts special attention to the community's learning, dialogue and to the personalization of learning. In this process our special concern is paid to adults who are in danger to be excluded from dialog e.g. low educated, young dropouts, migrants, unemployed, etc. Most of our work refers to non-formal learning that represents the major part in human lifelong learning.

#### **SIAE and adult educators:**

We are aware of the importance of competent staff in adult

education and thus we develop learning programs for adult educators (teachers, mentors, tutors, counsellors, advisers, etc.). They represent the cornerstone in the quality of learning process and thus important agents in changing society.

#### **SIAE and the project "Know your Lifestyle":**

It hasn't been difficult for us to decide to cooperate in the project "Know your Lifestyle", because it grows from similar values and has very similar aims as we have already write above. The questions of sustainable consumption are very important in the global world. We believe we can help to spread the principle of sustainable consumption in Slovenia. We have stepped in the project together with the network of PUM<sup>1</sup> mentors and Umanotera - the non-government organization who has already worked at this field for more than decade. We all learn together with other partners in the project. We communicate and share all the goods, knowledge and ideas in striving to disseminate them world widely.

# ESTONIAN NON-FORMAL ADULT EDUCATION ASSOCIATION

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The Estonian Non-formal Adult Education Association (ENAEA) is non-governmental, national umbrella organisation in the non-formal adult education field associating education-orientated NGOs and folk high schools. ENAEA has 72 member organisations.

Our values:

- Life-long learning and every person's active participation in his/her own community's as well as in the state's life as a whole is a necessary precondition and resource for development;
- Learning plays a key role in softening poverty, inequality and social stratification, but also in supporting democracy, creativity and economical development.

According to the ENAEA's standpoint, the life-long learning in Estonia has to guarantee taking into account the learners' needs and participants' active involving in study process and assure the accessibility of learning possibilities to all applicants.

ENAEA is active in adult education policy; supports activity of its members, promote their mutual relations; collects and publishes educational materials; collects and distributes information; carries out research projects; organizes seminars, courses, conferences etc.; cooperates with organizations having similar objectives in national and international level; cooperates with governmental institutions.

ENAEA has experience in different research and network projects: EQF, NQF, adult educators' profession and qualification issues (national and international level, incl. training of trainers), basic skills and vocational education, key competencies and non-formal education etc.

The competence areas are: adult education in local areas; NGO leader training; guidance and counselling in adult education; quality of adult education (incl. training of trainers); involving school dropouts (young adults) into adult learning activities.

<sup>1</sup>PUM is Slovenian acronym for second chance educational programme i.e. Project learning for young adults that has been developed at SIAE in nineties to help young dropouts to get education or to find a job. Today there are 12 PUM groups in Slovenia.

# EUROPEAN ASSOCIATION FOR THE EDUCATION OF ADULTS

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EUROPEAN ASSOCIATION FOR  
THE EDUCATION OF ADULTS

The European Association for the Education of Adults (EAEA) is the voice of non-formal adult education in Europe. EAEA is a European NGO with 123 member organisations in 42 countries and represents more than 60 million learners Europe-wide.

EAEA is a European NGO whose purpose is to link and represent European organisations directly involved in adult learning. Originally known as the European Bureau of Adult Education, EAEA was founded in 1953 by representatives from a number of European countries.

EAEA promotes the social inclusion aspects of the EU 2020 strategy; it promotes adult learning and the widening of access and participation in formal and non-formal adult education for all, particularly for under-represented groups. We promote learner-centred approaches that take people's lives into account and enable them to acquire all kinds of competences, with particular attention to basic & transversal skills.

## EAEA

- provides information & briefings on EU policy
- cooperates with EU institutions, national & regional governments, e.g. the Council of Europe & UNESCO
- cooperates with stakeholders, through EUCIS-LLL

- releases reports, handbooks, project information & results
- provides advice and recommendations for our members' policy work
- helps members with exchange of good practice, partner search & dissemination of projects & events

EAEA aims to support and disseminate their member's engagement in activities, partnerships, policy and curricula development, research and provision for social inclusion and cohesion, democratic participation and combating poverty and discrimination. Linked to an international network of adult education providers, EAEA is leading in mainstreaming innovative concepts in adult learning. EAEA regularly organises European conferences on topics relevant to Adult Education and LLL and links to other European platforms and umbrella initiatives on European level.

Furthermore, EAEA has a long expertise in dissemination activities and powerful dissemination channels: through its website, it reaches 350000 unique visitors in a year; its newsletters counts more than 2000 readers and its social media are followed by more than 800 people.

# THE AUTHORS OF THIS VOLUME: KATE - KONTAKTSTELLE FÜR UMWELT UND ENTWICKLUNG E.V.

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KATE e.V. was founded in 1988 as the Contact Point for Appropriate Technologies and Development and has been renamed in the 1990s into Contact Point for Environment and Development, but the abbreviation KATE has been retained. From the original so-called technical development cooperation, the association's activities have shifted more towards educational work, so that the name change made sense.

We are a charity based organisation which is located in the House of Democracy and Human Rights in the Berlin district of Prenzlauer Berg. An interdisciplinary team works in the areas of environmental and development education and development cooperation with project partners in Central America.

We are members of the federal umbrella organisation of non-governmental development organisations (VENRO) as well as member of the INKOTA-network. We are represented in the Policy Advisory Council on Development of the Department for Economics, Technology and Research of the Senate of the town of Berlin as well as in the Council of the North-South Bridges Foundation.

Within the framework of two EU financed projects, KATE e.V. is working since 2010 together with four partner organisations based in Berlin and other partner organisations in England, Austria, Czech Republic and Hungary involved on the anchoring of Global Education school life in the town of Berlin. Currently, students are trained by KATE e.V. as a peer-to-peer "climate breakfast speakers" to become active in terms of commitment to climate justice.

In Germany, the association promotes developmental environmental education in kindergartens, schools and in youth facilities and implements methods of adult education. Since

2002, KATE e.V. coordinates the „Berlin Development Education Programme“ (benbi) in which more than 20 NGOs from Berlin and Brandenburg are involved. We initiate and accompany south-north school partnerships with the aim to improve the social, environmental and economic situation in the partner countries and to educate about global relationships. Moreover, we are accompanying educational projects („Your world in focus - Tu mundo en el visor 2.0“) in which students of Nicaragua, El Salvador and Germany exchange ideas about age-relevant topics directly in the web 2.0. We offer children, young people, their parents as well as their educators the „Climate Breakfast - How our food affects the climate“ and disseminate appropriate educational materials nationwide. Designed by KATE e.V., the „Action Manual for sustainable consumption and development“ supports multipliers in the field of development education.

For all of these projects KATE e.V. won several awards from the German UNESCO-Commission in the framework of the United Nations' "Decade on Education for Sustainable Development" (2005-2014). Moreover, KATE e.V. is one of temporarily 36 other groups which are recommended as "competent partners in the field of Global Learning" by the Senate for Education, Youth and Science of the town of Berlin. Regularly, projects are carried out within the framework of the ASA South-North Programme. Actually, four young adults from Nicaragua and Germany work in a joint educational project in both countries for the duration of three months. Moreover, KATE e.V. organises meetings between pupils from Nicaragua, El Salvador and Germany as part of the Development Policy Pupils Exchange Programme (ENSA).

# III. INFORMATION ON THIS VOLUME

## **Target group**

This collection of teaching materials was compiled for facilitators engaged in Second Chance Programmes at German Folk High Schools. But of course it is unlikely that anything will impede the use of the materials with various target groups.

## **Methodology**

Methodically, the brochure is based on the educational concept of Global Learning. The methods are designed and selected to allow both cognitive and creative work on the subject.

## **Structure**

The design and theme of the brochure is based on the life cycle of a cellular phone and is divided into 6 chapters.

- Introduction
- Production of components and trade
- Production
- Consumption and use
- Recycling
- Opting-out

In each chapter, facilitators will find background information on the individual topics, as well as a selection of methods.

## **Working with the brochure**

The brochure offers different approaches.

On the one hand, it can be used as a collection of methods on the topic of cellular phones. One or several methods can be selected and integrated into the teaching activities depending on the subject, interest or available time.

On the other hand, a possible project variation will be presented which will cover 7 x 45 minutes.

It also provides facilitators with the opportunity to conceive a project day independently focusing on one or more aspects of the topic.

The methods are described in such a manner, that facilitators can easily implement them. The required materials, time and notes for preparation, implementation and evaluation are listed. Templates and worksheets may be found in the descriptions of the respective methods provided. These may be copied out of this publication. Since the materials may be also found in the download section of our project website ([www.knowyour-lifestyle.eu](http://www.knowyour-lifestyle.eu)), the printing of single contents may ease the process of preparation.



# COURSE CURRICULUM

Time required: 7 x 45 minutes

time/minutes	title	activities	content	materials/ documents
<b>45</b>	<b>The introduction</b>			
15	What's App?!	Presentation of the project	Presentation of the project	Flipchart paper
15	Flash-light	Reaching the topic	the own cellular phone usage and usage behaviour	
15	Position barometer	Reaching the topic	the own cellular phone usage and usage behaviour	
<b>45</b>	<b>Raw materials, production and trade</b>			
45	A look inside the cellular phone - raw materials check	disassembly of the cellular phone, and a puzzle of the raw materials used	raw material processing in cellular phones	Discarded cellular phones, small hexagonal screwdrivers (torx), raw material puzzles (copy template)
<b>2 x 45</b>	<b>Production</b>			
10	From the raw material to the component	active lecture on the production chain of cellular phones	Linking of the topics mining and trade, with the production	Script Active lecture (copy template), for materials see script
5	made in...	determination of cellular phone production facilities	Determination of the origin countries of the cellular phone components	Cellular phones of the participants, cellular phone components, magnets or pins, world map
75	Workers' report...	text analysis, talk show	working conditions in the cellular phone production	Flipchart paper, moderation cards, work assignments pins, pens
<b>45</b>	<b>Consumption and use</b>			
10	My cellular phone and I	station course regarding the topic of cellular phone use and consumption	the own cellular phone usage and usage behaviour	See Description of the stations

45

## Recycling

5

How should the old cellular phone be disposed of?

flash-light round

recycling or further usage options for old cellular phones

Moderation cards, pens, flipchart paper, graph

40

The travel route of your old cellular phone

a game to highlight the disposal and usage options for an old cellular phone

recycling or further usage options for old cellular phones

Game plan, playing cards (copy templates), dice, game pieces

45

## The opt-out

15

All's well that ends well?

Retrospective observation of the project day and summary of the results

Retrospective observation of the topics and highlighting of the relationships

Working materials of the project day

30

World Café

discussion of action options and alternatives

Identification of action options for the various entities, to reduce deficiencies

Question cards snacks, music, candles, flipchart paper

## >>> WHAT'S APP?! PRESENTATION OF THE PROJECT

The participants are familiar with the content of the project day.

The participants will receive an overview of the planned key topics through a short presentation.

### Preparation

The headings for the selected topical aspects are each written on a piece of paper.

- Raw materials
- Production
- Consumption and utilization
- Recycling

For every topical aspect, there will be a place in the classroom, the so-called „showcase“ and equipped with a flipchart paper. The flipchart papers will be labelled with the following question: „What's App?“

### Implementation

The teacher will present the selected topical aspects of a few words and in chronological order. After the presentation of each aspect, the corresponding heading will be placed into the

 lecture

 15 Min.

 flipchart paper, pens

respective „showcase“. The teacher will point out that this „showcase“ will be filled with the materials created by the participants during the course of the project day. The flipchart paper offers the participants the opportunity to write down notes, questions and ideas regarding the respective aspect.

### Tips for the teacher

Before the topical aspect is completed, the teacher should take a look at the flipchart paper with the comments, questions and ideas of the participants and take them into account.

### Possibilities for further work

A link to the method „All's well that ends well?“ at the end of the project day could be a viable option.

## >>> FLASHLIGHT- REACHING THE TOPIC

Participants can position themselves on the subject and make references to their everyday lives.

Participants will express their views on the topic within the scope of a flash-light session, with a brief comment on the subject. The teacher has the opportunity to gain an initial overview of the knowledge and key interest points of the participants regarding the cellular phone topic.

### Implementation

The teacher will ask the participants consecutively to spontaneously express a thought regarding the cellular phone topic. The person who wants to start will do so, and the round will continue in a clockwise direction afterwards. The individual statements shall remain uncommented.

 Plenary

 15 Min.



### Evaluation

After the flash-light round, the teacher will briefly address the topics, thereby taking vantage of the opportunity to outline the further course of the project day.



# >>> POSITION BAROMETER REACHING THE TOPIC

Participants can position themselves on statements regarding the cellular phone subject and make references to their everyday lives.

 Plenary

 15 min



The participants can assign themselves to statements regarding the topic cellular phone on a position barometer. The teacher has the opportunity to gain an initial overview of the knowledge and key interest points of the participants regarding the cellular phone topic.

## Implementation

In the room, an imaginary line is drawn with two poles on two opposite sides of the room. The two poles are described briefly:

- Pole I: „Yes“ or „I completely agree with the statement!“
- Pole II: „No“ or „I completely disagree with the statement!“

The participants are prompted to position themselves on the imaginary line, depending on their consent or rejection level to the following statements. Thereby, the line is to be regarded as a continuous barometer. The participants can assume a position on the outer parts of the poles as well as any position in between.

The teacher describes the poles and will read each one of the following statements:

- „My cellular phone is essential for me.“
- „I am always reachable over my cellular phone.“
- „My cellular phone has often been able to ease everyday life for me.“
- „I can explain what Coltan is.“

- „My cellular phone is manufactured under fair conditions.“
- „I believe that I can partially change the world through my consumption behaviour.“

The participants should position themselves in accordance with their personal opinions.

## Evaluation

After all participants have found their position, if they desire, they can very briefly explain why they have assumed that position. This should absolutely be conducted voluntarily.

The teacher hereby approaches the groups that have formed in order to direct the questions to the respective the participants.

Another form of evaluation is that participants, who have grouped together in different places of the barometer, briefly exchange their views and then answer the questions from the teacher.

## Versions

Some questions / statements can be used freely. It should be ensured that questions / statements are formulated clearly and as short as possible, and that after each positioning the participants are well aware that a further statement will follow. In total, there shouldn't be too many questions / statements (approx. 5-8).

# >>> THE TOPIC OF RAW MATERIALS PRODUCTION AND TRADE

## General information on the subject of raw materials

It is possible that are many different substances in a single cellular phone. As with many modern electronic products, these elements will only be found in very low concentrations in the individual device. However, every year the mass production consumes considerable amounts of resources.<sup>1</sup> The materials for the manufacturing of a cellular phone must be mined, smelted, and prepared before a phone is assembled through the individual components. Hereby, enormous amounts of raw materials are moved and enormous amounts of energy are consumed, which sometimes has a dramatic impact for humans and the environment.<sup>2</sup>

## The cellular phone: Components and materials

A cellular phone is made up of various components, which among others include the housing, the keyboard, the battery, the display as well as the PCB, the antenna, the speaker and the microphone. A wide variety of raw materials is required for the manufacturing of these components, which is mined and processed in different countries.<sup>3</sup> A cellular phone is made up of various components, which among others include the housing, the keyboard, the battery, the display as well as the

PCB, the antenna, the speaker and the microphone. A wide variety of raw materials is required for the manufacturing of these components, which is mined and processed in different countries. About 60 different materials are needed for the manufacturing of cellular phones, e.g. plastics for the case and the keyboard, metals for cable, contacts, the printed circuit board and batteries as well as glass and ceramics for the display.

The raw materials processed for the cellular phone are not distributed proportionally. The amount of the individually processed substances can partially be very small. However, the negative consequences for the environment, even for substances which are only present in the cellular phone in very small amounts, can be very severe. This is because that the mining of rare precious metals such as Gold is very resource-intensive. To obtain just a few amounts of Gold, several tons of earth and rock must be moved. In addition, toxic substances are used to separate the Gold from other substances. In 2011, according to estimates approx. 1,8 billion cellular phones were sold worldwide. If you add up the raw materials used, for example, there were 16,000 tonnes of Copper, 6,800 tons of cobalt, 450 tons of Silver and 43 tons of Gold used.<sup>4</sup>

Element	Chem. Symbol	Proportion in the cellular phone	Use in the cellular phone	Main production countries
<b>Copper</b>	Cu	5%	In conjunction with other metals used for the contacts on the circuit board	Chile, Peru, USA, Indonesia
<b>Silicon</b>	Si	8-15%	Use in microchips, in the glass of the display, in the keyboard	Worldwide, including China, Russia, United States
<b>Aluminium</b>	Al	4-9%	Use in thin covers and batteries	China, Russia, Canada
<b>Cobalt</b>	Co	ca. 4%	Part of the electrodes of lithium ion batteries (for other battery types, the proportion is lower)	Canada, China, Russia, Congo, Zambia
<b>Lithium</b>	Li	3-4%	Use in batteries and rechargeable batteries (for other battery types, the proportion is lower)	Bolivia, United States, Argentina, Chile, Tibet
<b>Iron</b>	Fe	ca. 3%	Use in screws and springs	Brazil, China, Australia, India
<b>Silver</b>	Ag	ca. 0,5%	Use in the keyboard, in conductive adhesives and on the circuit board in contact strips.	Peru, Mexico, China, Australia
<b>Gold</b>	Au	<0,1%	Use in contacts (contacts, PCB, connectors)	South Africa, Australia, China, United States
<b>Beryllium</b>	Be	approx. 0,0157%	Use in contacts (alloy with other metals)	USA
<b>Tantalum</b>	Ta	approx. 0,004%	Use in microwave capacitors (for storage)	Brazil, Australia, Congo, Mozambique, Rwanda
<b>Platinum</b>	Pt	approx. 0,004%	Use in contacts on the circuit board	South Africa, Russia, Canada

<sup>1</sup>comp. SATW 2010, p. 7  
<sup>2</sup>comp. BMBF 2012, p. 12

<sup>3</sup>comp. BMBF 2012, p. 12  
<sup>4</sup>comp. Südwind 2012, p. 5

Source: modified according to BMBF 2012, p. 14  
 Numbers vary depending on the phone model

### **The raw material extraction**

The raw material extraction process includes various phases such as the mining and production of the required basic materials as well as the transport. First the metals are mined, later smelted and finally processed. In particular, the mining of precious metals is resource-intensive, since they only exist in the ores in small quantities. The production of plastics also consists of several steps. Initially, crude oil is pumped, which is then refined and processed in petrochemical processes, so that ultimately plastics can be created.<sup>5</sup>

The mining of the raw materials required for our

cellular phones is performed in different countries, whereas it is difficult for the consumer to determine the precise origin.<sup>6</sup> The mining of raw materials has significantly come into the public eye in recent years, because they commonly have severe consequences for the environment and are associated with the violation of human rights as well as international social and labour standards. The consequences of this differ from country to country.<sup>7</sup> Due to the increased attention and the increased awareness for the issue, improvements in the environmental and social impacts were noticeable within the last few years, but there are still major problems in this area.<sup>8</sup>

## **>>> PROBLEMS FOR HUMANS AND THE ENVIRONMENT ASSOCIATED WITH THE RAW MATERIAL EXTRACTION**

### **Destruction of land and inflection of environmental damage**

The raw material mining destroys great land areas, as the ores are typically excavated in an open pit. To reach the layers containing the ore it is usually necessary to move large amounts of earth and rocks, which causes massive environmental damages especially in countries with low environmental standards.<sup>9</sup>

### **Use of chemicals and high energy consumption**

The extraction of the actual metals from the ore is often performed by using chemicals that pollute the environment. Also, large amounts of energy are consumed for the mining of raw materials.<sup>10</sup>

### **Health hazards through environmental pollution**

The air, water and soil pollution resulting from the raw material mining strongly affects the livelihoods and health of the population living in the surrounding area.<sup>11</sup>

### **Violations of human rights and international social standards**

The raw materials mining, especially in the artisanal mining, is frequently associated with violations of human rights and international social standards.<sup>12</sup> Labour law standards such as the protection against dismissal or the observance of weekly work times is usually non-existent. Small miners are also strongly dependent on intermediate traders, which try to forcefully lower prices and demand fees and taxes. Usually, they have no means of retaliating against this kind of practice

because they were pre-financed by intermediary traders and received loans. Furthermore, the low wages represent a problem. Thus, the workers often only receive 1-3 \$ per day, which doesn't even satisfy the minimum needs of a family. Women often earn especially low wages because they only perform assistance work, and child labour is also widespread. The workers also often work in inadequately secured stockpiles, tunnels and shafts. Missing protective clothing, dust, fumes, oversteering and a poor sanitary and medical care often endanger their health.<sup>13</sup>

### **Land conflicts and displacement of the local population**

In the industrial mining there are sometimes land conflicts because of the high spatial requirement, and the local population is sometimes driven away.<sup>14</sup>

### **Example of Tantalum and the civil war in the Congo**

#### **Tantalum**

One of the most controversial substances used for the cellular phone, is Tantalum, a rare metal that is present in every cellular phone in minute quantities. Tantalum is especially used in the construction of capacitors in cellular phones, since it is a good conductor of electricity and extremely heat and acid-resistant. The metal Tantalum is extracted from the Coltan ore. Coltan is the abbreviation for „Columbo-tantalite“. The information regarding the origin of Tantalum traded on the world market is controversial.<sup>15</sup> Largest producing countries

<sup>5</sup>comp. BMBF 2012, p. 15

<sup>6</sup>comp. Südwind 2012, p. 5

<sup>7</sup>comp. Südwind 2012, p. 5; comp. BMBF 2012, p.15

<sup>8</sup>comp. Germanwatch 2012, p. 14

<sup>9</sup>comp. BMBF 2012, p. 15; comp. Germanwatch 2012, p. 14

<sup>10</sup>comp. Südwind 2012, p. 5

<sup>11</sup>comp. BMBF 2012, p. 15

<sup>12</sup>comp. BMBF 2012, p. 15

<sup>13</sup>comp. BMBF 2012b, p. 2

<sup>14</sup>comp. BMBF 2012a, p. 1

<sup>15</sup>comp. SATW 2010, p. 24

are Brazil, Mozambique, Rwanda, Australia and the Democratic Republic of Congo).

### **Tantalum and the civil war in the Congo**

The DR Congo has large deposits of valuable commodities such as diamonds, Copper, Cobalt, Gold, Tantalum, Zinc, Silver, or coal, the value of which is estimated at \$100 billion. When the civil war began in the Congo in 1996, the mining of raw materials became the focus of various rebel groups and armies from neighbouring countries. They financed their fight, among other things through trade with the valuable treasures.<sup>16</sup> The invading troops and rebel factions looted the supplies of raw materials from the storage facilities of intermediary traders in a first step, whereby several tons of Coltan were moved out of the country.<sup>17</sup>

Coltan was regarded as an easily accessible raw material, because it can be mined along rivers with simple means. Hereby, in the mines there were thousands of cases of robbery, serious human rights violations, murder, rape, arbitrary arrests, torture as well as forced labour of adults and children.<sup>18</sup> The Coltan was loaded into small aircraft and usually flown out into the neighbouring countries. There it was further processed, and the Tantalum extracted. Due to the temporarily high world market price and the shortage of Tantalum, the raw materials from this region were repeatedly used in spite of the knowledge that the purchase of Tantalum from the Congo was being used to finance the civil war in that country.<sup>19</sup> Today, the war in the Congo is officially over, but the illegally built export structures partially continue to exist. 12 of the 13 largest mining sites for Tantalum are still controlled by paramilitaries, and shares of the excavated raw materials are smuggled out of the country. The hereby attained proceeds are used to finance several rebel groups as well as factions of the government army, and neither benefit the country nor the population.<sup>20</sup> For 2006, the export value for Tantalum from the DR Congo was estimated at 25 million US dollars, but only one-third of this appeared in the official export statistics and was taxed accordingly.<sup>21</sup> Despite these deficits, the mining and trading of Tantalum represents an important source of income for the country and contributes to the livelihood of many people.<sup>22</sup>

### **The Copper mine Chuquicamata in Chile**

#### **The Copper mine**

Chuquicamata, the world's largest industrial open-pit Copper mine is situated in the middle of the Atacama desert in Chile on an area of 120 square kilometres. In over a century during which Copper has been mined there, more than 18 million tons of this metal have been produced. Further 90 million tons are to follow over the next hundred years. Until 1971, the Copper deposits belonged to U.S. companies, but were

nationalized under the Government of Allende. Until today, the State company CODELCO is operating the mine.

### **The process of acquiring raw material**

All processes are carried out on site, from the mining of the Copper ore all the way up to the finished product. Every day, approx. 600,000 tons of rocks are blasted from the mountain, loaded onto trucks and transported to stone mills. Treadmills carry the chunks directly into the mills, where they are gradually ground up, until they are smaller than grains of sand. During the subsequent flotation, the grated rock is mixed with water and various chemicals. The resulting broth is foamed with air, so that the Copper particles rise to the surface where they are skimmed off. The extracted Copper granules are placed into the blast furnaces and are melted at a temperature of 1300 degrees Celsius. After the melting, the liquid Copper is moved into the foundry and their poured into the Copper plate form. These so-called Copper anodes already have a purity of 99.7%. Subsequently, the electrolysis will start as the last stage of the Copper mining. Thereby, the anodes are submerged into a sulphuric acid solution and connected to a circuit. The Copper dissolves from the anode and travels to the cathode. Insoluble elements and metals are dissociated. After twelve days, the purest Copper with a purity of 99.9% has been created, which is traded and exported then on the world market and the exchanges. Chile's entire economy is dependent on the export of Copper.<sup>23</sup>

### **Working conditions in the mine**

To keep the mine running, about 15,000 people work day and night seven days a week. They work as an excavator or truck driver, or in the smelting or the electrolysis areas. Many of them earn more than the double of the Chilean average wage and have a social insurance. In the hospital of the nearby town, all company employees and their families are treated free of charge.<sup>24</sup> However, the mine doesn't just bring prosperity. Through this, for example, temporary workers are hired from subcontractors and poorly paid. They do not have access to the privileges of the company employees. The health consequences are also not to be underestimated. All workers are exposed to health threatening mineral dust. It contains highly toxic arsenic, which directly reaches the lungs through fine dust particles, which can lead to respiratory diseases and may result in an increased risk of cancer.

### **Consequences for the environment**

The impact of the Copper mining on the environment was and continues to be serious. Its toxic legacy will be felt for many decades. Thus, today in Chile there are almost 150 slag heaps and over 700 tailing dumps, of which 300 security problems. Here, toxins seep into the soil and water veins. The process of Copper extraction is also very water-intensive. In Antofagasta,

<sup>16</sup>comp. Missio 2012, p. 3

<sup>17</sup>comp. Missio 2012, p. 4

<sup>18</sup>comp. Missio 2012, p. 4

<sup>19</sup>comp. Missio 2012, p. 4

<sup>20</sup>comp. BMBF 2012b, p. 1; comp. Missio 2012, p. 5

<sup>21</sup>comp. BMBF 2012b, p. 1

<sup>22</sup>comp. Südwind 2012, p. 7; comp. Missio 2012, p. 5

<sup>23</sup>comp. Wuthe/ Gerriets 2006

<sup>24</sup>comp. Wuthe/ Gerriets 2006

the Chilean region with the highest concentration of mines in the country, more than one thousand liters of surface water are consumed per second through the mining industry. This has fatal consequences for higher elevated bogs as well as wetlands, and endangers the subsistence economy of the indigenous communities in the Atacama desert. Since the

mines can especially be found in areas where there is already a water scarcity, the conflicts over water will intensify. They barely developed environmental legislation in Chile, the free water harvesting rights and the low price for the mining concessions strengthen the position of the mine operators.<sup>25</sup>

## >>> REGULATIONS ON ESTABLISHING TRANSPARENCY IN THE RAW MATERIALS SECTOR

### **Civil regulations**

From civil society side, the foundation of initiatives such as „Publish What You pay“ (PWYP), the „Extractive Industries Transparency Initiative“ (EITI) or the „International Conference on the Great Lake Region“ (ICGLR) aims to address solutions for the creation of more transparency in the raw materials sector.

### **Publish What You Pay (PWYP)**

To promote the transparency in the raw materials sector, the PWYP network was founded in 2002 by non-governmental organisations (NGOs), which to date include 650 member organizations. The demand is an alteration of the international financial reporting standards which should be designed in such a manner, at the balance sheets of international corporations as well as the revenue and tax payments should be disclosed per country. Mining companies which are listed on western stock exchanges, should be required to report their income and tax payments per country. In addition, PWYP demands a transparent design for the awarding of concessions, in order to have more information already available before the actual establishment of a mine.<sup>26</sup>

### **Extractive Industries Transparency Initiative (EITI)**

In 2002, the „Extractive Industries Transparency Initiative“ (EITI) was also created, in which governments, civil society organizations and companies from the sectors of mining, oil and gas are involved. The goal is the disclosure of government revenues from the raw materials industry, whereas the demands are less extensive than with PWYP and the voluntary participation is becoming increasingly voluntary.<sup>27</sup>

### **Project in Central Africa / International Conference on the Great Lake Region (ICGLR)**

The dependence of the cellular phone industry on the access to Tantalum, tin and Gold has moved the situation in eastern part of the DR Congo as well as in the neighbouring countries into the focus of many projects. The spectrum ranges from initiatives for the creation of a transparency from the Government of the States of Central Africa, which have united to form the „International Conference on the Great Lake Region“ (ICGLR), to initiatives for the development cooperation as well as NGO approaches, and all the way up to development cooperation projects. The pivotal point of the projects is the creation of transparency, in order to make the route of the ores from the mines traceable all the way to the smelting plants. An example of a current initiative in the region is the Certified Trading Chains (CTC) project, which is supported by the Federal Institute for Geosciences and Natural Resources (BGR) in Germany, which aims to conduct the certification of raw materials commodity chains in the Great Lakes region of Central Africa. For example, it is proposed to clearly label the sacks filled with ore in the mines with the aid of seals, and to document their route all the way to the smelter. Such a certification aims to create transparency and traceability in the retail chains and to improve the working conditions. In this respect, issues such as fair wages, health and safety, safety on the mine premises, abolition of child labour, community development and environmental management were stated. Four mining companies are initially involved in a pilot project in Rwanda, where in addition to the own employees peasants and farmers are also employed which operate as subcontractors on the respective concessions. In this context, Coltan, Cassiterite, Wolframite and Tungsten are mined. In addition, the BGR is consulting the Congolese Government regarding the strengthening of transparency and control in the raw materials sector with the aim to also establish a certification system for Coltan, Wolframite, Cassiterite and Gold in this region. The small mining operations play an important role here.<sup>28</sup> In addition to

<sup>25</sup>comp. Heinrich Böll Stiftung 2013

<sup>26</sup>comp. Südwind 2012, p.19

<sup>27</sup>comp. Südwind 2012, p.19

the tracking of the physical flow of goods, the creation of a transparency could be attained through a method developed by the BGR, for the creation of a „fingerprint“ of metal ores to facilitate the chemical evidencing. However, this requires an analysis of the soils and rocks in the mining areas. However, this is only partly possible due to the uncertain situation in the eastern part of the Congo. In addition, the current procedures are relatively expensive and there is the danger that only larger mines will be checked, while the auditing of the mines of small miners is not worth the effort and they will therefore be pushed off the market.<sup>29</sup>

### **State regulations**

From the government side, legislative regulations for the creation of transparency were discussed and adopted by the United States with the Dodd-Frank Act, and also by the EU through the appropriate legislation.

### **US Government**

On July 21, 2010, the Dodd-Frank Act was signed in the United States. In the section 1502, this comprehensive legislative package contains the requirements regarding the use of resources from areas of conflict in the DR Congo and requires all companies listed on U.S. stock exchanges, that the metals Gold, tin, Tantalum and Tungsten which they use, must verifiably be unable to support militias. Evidence of the exact origin of the four raw materials are required for imports from the eastern part of the Congo and nine neighbouring countries. In a second paragraph, the Dodd-Frank-Act requires the disclosure of payments from the companies to government

agencies in the countries where they mine raw materials.<sup>30</sup> The US Securities and Exchange Commission (SEC) has implemented part of the Dodd-Frank Act on 22 August 2012. Stock market listed companies are now required, disclose to use of so-called conflict minerals. The affected companies must report to the SEC for the first time on 31 March 2014 for the calendar year 2013, whether the above mentioned minerals are necessary for the functioning or for the manufacturing of a product. Hereby, it is irrelevant whether the company manufactures the product itself or by third parties.<sup>31</sup>

### **EU-Commission**

On October 25, 2011 the EU presented a proposal for new transparency rules, which in some points even reaches beyond the Dodd-Frank Act, since it also includes the lumber industry and the activities of large companies which are not listed on the stock exchange. Parts of the German industry and their respective associations only want to disclose the payments per country, and not an itemized listing according to the projects. The German Federal Government is proposing lower standards in Brussels with the associated risk of weakening the rules on transparency, which could render them worthless to a great extent. Also on the October 25, 2011 the EU Commission published the proposal that in the future companies company should be obliged to draw up reports on the perception of their social responsibility (Corporate Social Responsibility CSR). The demanded creation of transparency could be an important step to determine the responsibility for irregularities in supply chains and to implement targeted measures.<sup>32</sup>

## **>>> ALTERNATIVE COURSES OF ACTION**

### **On the policy level**

#### **Imposition of an embargo on raw materials from conflict regions**

In addition to the creation of transparency, the imposition of embargos for raw materials from regions of conflict is also being discussed. However, critics see the danger of a further criminalisation of the sector and a deterioration of the economic and social situation within the region through the missing revenue.<sup>33</sup>

### **On the level of the mining companies**

#### **Sustainable mining of raw materials**

An approach that includes the mining of most of the metals

used in cellular phones and advocating for a sustainable mining of raw materials, is being promoted by the International Council on Mining and Metals (ICMM), an initiative of the 21 largest mining companies, as well as 31 regional, national and global economic associations. Ten principles were developed, where the companies have committed themselves to a compliance on a voluntary basis. These principles include business ethics, the pursuit of a sustainable development, risk management, biodiversity, ecology, and the initiative to positively contribute to the development of the communities in which they operate. Since 2008 there are external controls, to check whether the companies have kept their commitments. However, to date

<sup>28</sup>comp. BMBF 2012b, p.3

<sup>29</sup>comp. Südwind 2012, p.21f

<sup>30</sup>comp. Südwind 2012, p.19f

<sup>31</sup>comp. IHK München und Oberbayer o.J.

<sup>32</sup>comp. Südwind 2012, p.20f

<sup>33</sup>comp. BMBF 2012b, p.3

there are only a few published results of examinations and many of the specifications are very non-specific, which makes the identification of violations very difficult.<sup>34</sup>

### **At the level of the manufacturers**

#### **Creation of transparency**

Manufacturers are able to promote a higher transparency in the raw materials sector and ensure for the production of their products, that the necessary raw materials will originate from conflict-free regions and comply with environmental and social standards for the mining.

#### **Substitution of metals**

One of the most effective, but also one of the most difficult to implement solution approaches is the substitution of rare metals with greener and better available materials. In the case of Tantalum, for example, which was a prerequisite for the production of micro-electrical capacitors for a long time, and then subjected to an extreme price increase, was replaced by niobium which was available at low prices in the short-term.<sup>35</sup>

### **At the level of the consumers**

#### **Purchase a Fairphone**

Consumers have the option of purchasing a cellular phone, for which the use of rare metals from crisis regions was omitted, and human rights as well as social standards were complied with during the mining of raw materials.

#### **Recycling of old devices**

The raw materials contained in the devices can be regained and reused by recycling old cellular phones. The extraction of secondary raw materials helps to reduce the consumption of the primary raw materials, and thus also the negative consequences of the mining of raw materials.

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<sup>34</sup>comp. Südwind 2012, p.21

<sup>35</sup>comp. BMBF 2012c, p.6

# >>> A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: DISASSEMBLY OF THE CELLULAR PHONE AND A PUZZLE

The participants know what raw materials were processed in their cellular phone. Through the dismantling of cellular phones and the mapping using a puzzle, the participants can clearly recognize which raw materials are used in which components.

## Preparation (5 Min.)

The teacher will ask the participants in a timely manner, to bring their obsolete cellular phone with them to the project day for dismantling. The teacher will ensure the availability of suitable tools, such as small hexagon screwdrivers (torx screwdriver).

The copy templates for the raw material puzzle will be printed out (see the copy template 3) and provided once for each group.

## Disassembly of cellular phones (15 Min.)

The participants will be asked the following questions, which they should keep in the back of their mind during the further course:


- „How many raw materials are actually in a cellular phone?“
- „Where could these raw materials originate from?“

Participants will then receive a cellular phone and disassemble it into as many individual parts as possible. Hereby it must be observed that the battery is removed first. In addition the participants will be asked to proceed with caution during the disassembly, because there is risk of injury from the sharp edges of the components. The following components should be removable:

- Battery: Lithium (Li), Cobalt (Co)
- Housing: Plastic or Aluminium (Al)
- Display: Indium (In), Silicon (Si), rare earth (RE)
- Keyboard: Plastic
- Printed circuit board: Gold (Au), Beryllium (Be), Copper (Cu), Gallium (Ga), Platinum (Pt), Tantalum (Ta), Silicon (Si)

 group work, plenary

 45 Min.

 Raw material puzzles (copy template), discarded cellular phones, small hexagonal screwdrivers (torx screwdrivers)

## Puzzle (10 Min.)

The participants will now consider, out of which materials the different parts of the cellular phone are made. A piece of the puzzle is then associated to each part of the cellular phone, that refers to the raw material from which the respective part of the cellular phone was made.

## Check (5 Min.)

To control whether the allocation is correct, the participants can complete the puzzles in a final step, i.e. connect the puzzle part of the raw material to the appropriate cellular phone puzzle piece.

## Evaluation (10 Min.)

The evaluation is carried out during the puzzling. Do the parts fit, is the mapping correct. If the parts don't fit, the participants will continue to puzzle until each piece is in place. At the end, the initial questions will be reiterated and possible responses discussed.

## Versions

In the event that there are no cellular phones available for the disassembly, it is possible to only use the puzzle.

Therefore the components of the phone are copied twice. On one of each of the two copies the cables are cut off. These copies are used instead of the real phone components.

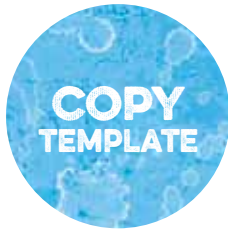




# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: DISPLAY



Nokia E7 Smartphone: Nokia Connect  
[www.flickr.com/photos/41118175@N05]



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: BATTERY



Produktbilder OPPO\_12: TechStage  
[[www.flickr.com/photos/bestboyzd/](http://www.flickr.com/photos/bestboyzd/)]



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: HOUSING



Phones, Phones & Phones: TechStage  
[[www.flickr.com/photos/bestboyzd/](http://www.flickr.com/photos/bestboyzd/)]



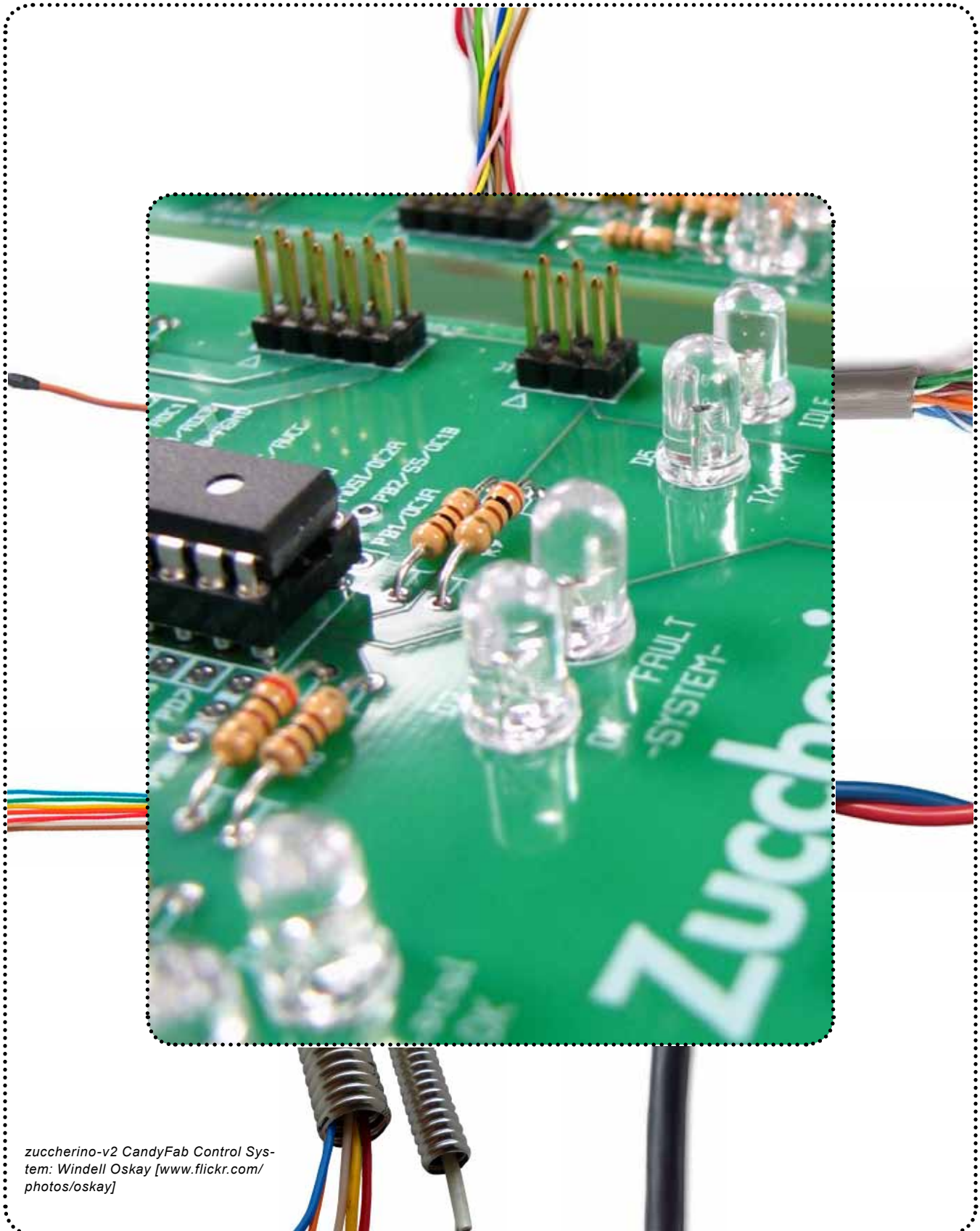
# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: KEYBOARD



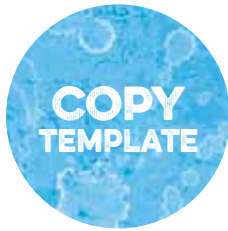
Handy-Tastatur :Tobias Abel  
[[www.flickr.com/photos/lennox\\_mcdough/45569804/](http://www.flickr.com/photos/lennox_mcdough/45569804/)]



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK: PRINTED CIRCUIT BOARD



*zuccherino-v2 CandyFab Control System: Windell Oskay [www.flickr.com/photos/oskay]*



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK



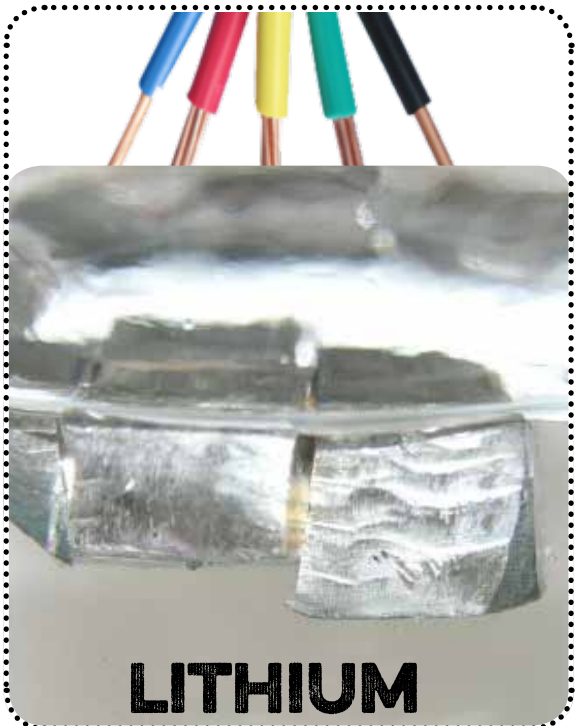
**GOLD**



**PLASTICS**



**PLASTICS**

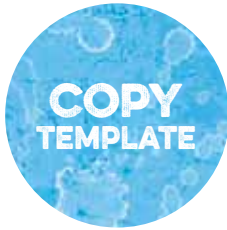


**LITHIUM**

picture plastics: Scrap Plastic Bits: George Thomas [www.flickr.com/photos/hz536n]

picture gold: „250g Goldbarren“ von Apollo2005 - Eigenes Werk. Lizenziert unter GFDL über Wikimedia Commons - [http://commons.wikimedia.org/wiki/File:250g\\_Goldbarren.JPG#mediaviewer/File:250g\\_Goldbarren.JPG](http://commons.wikimedia.org/wiki/File:250g_Goldbarren.JPG#mediaviewer/File:250g_Goldbarren.JPG)

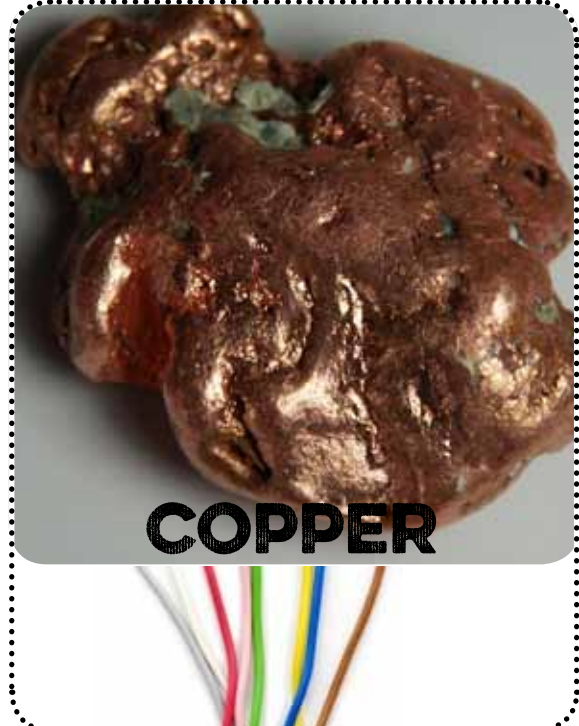
picture Lithium: „Lithium paraffin“ von Original uploader was Tomihahndorf at de.wikipedia - Originally from de.wikipedia; description page is/was here.. Lizenziert unter Gemeinfrei über Wikimedia Commons - [http://commons.wikimedia.org/wiki/File:Lithium\\_paraffin.jpg#mediaviewer/File:Lithium\\_paraffin.jpg](http://commons.wikimedia.org/wiki/File:Lithium_paraffin.jpg#mediaviewer/File:Lithium_paraffin.jpg)



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK



**TANTALUM**



**COPPER**

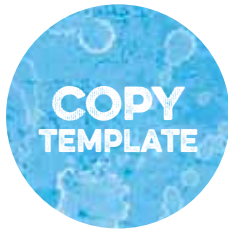


**COBALT**

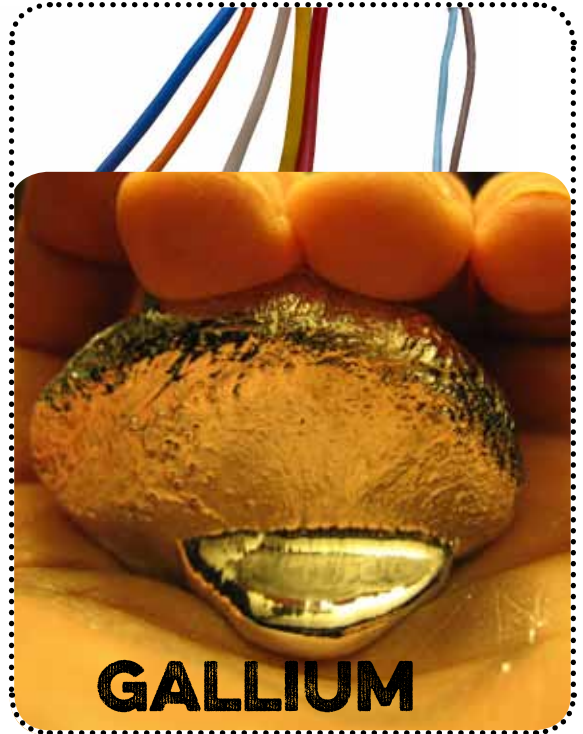


**PLATINUM**

picture copper: Kupfer-Nugget: Jurii [commons.wikimedia.org/wiki/File:Copper.jpg; images-of-elements.com/copper.php  
picture platinum: „Platinum-nugget“ von Alchemist-hp (talk) (www.pse-mendelejew.de) - Eigenes Werk. Lizenziert unter FAL über Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Platinum-nugget.jpg#mediaviewer/File:Platinum-nugget.jpg  
picture cobalt: „Skuttérudite“ by Didier Descouens - Own work. Licensed under GFDL via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Skutt%C3%A9rudite.jpg#mediaviewer/File:Skutt%C3%A9rudite.jpg



# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK

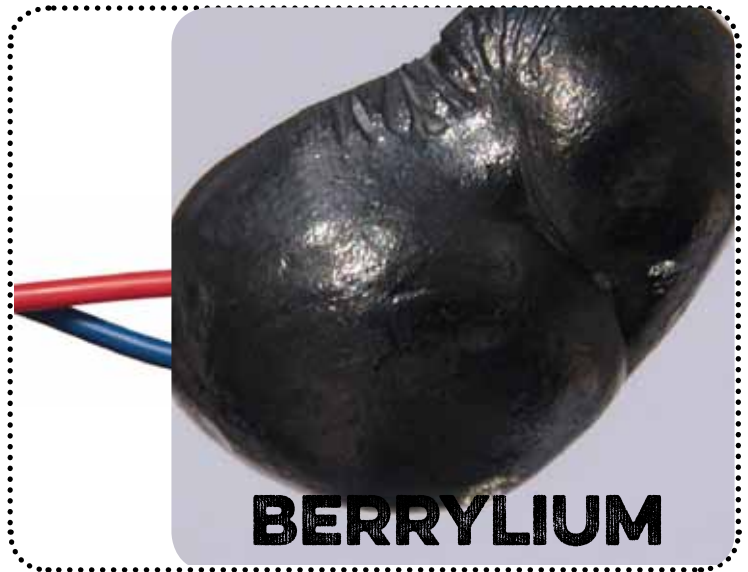
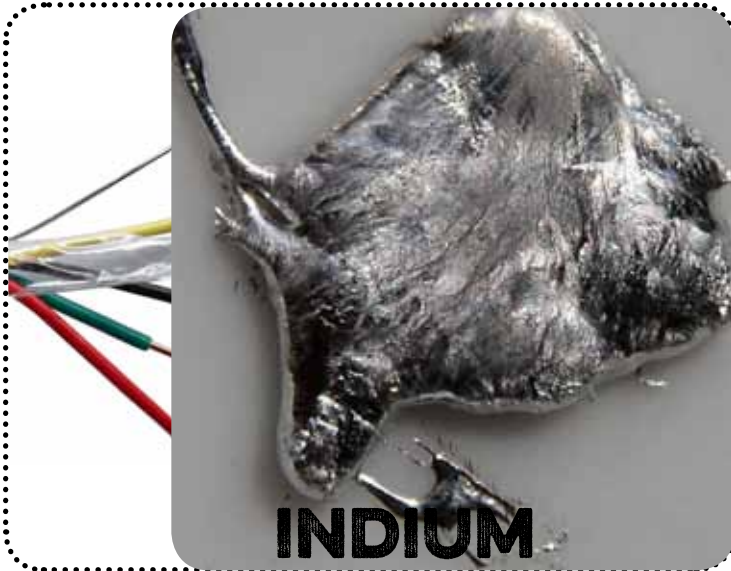


picture Gallium: Melted Gallium: Tor Paulin [[www.flickr.com/photos/thorius/](http://www.flickr.com/photos/thorius/)]  
"Aluminium-4" by Unknown - <http://images-of-elements.com/>. Licensed under CC BY 3.0 via Wikimedia Commons - <http://commons.wikimedia.org/wiki/File:Aluminium-4.jpg#mediaviewer/File:Aluminium-4.jpg>  
picture Silizium: „Quartz Brésil“ von Didier Descouens - Eigenes Werk. Lizenziert unter CC BY 3.0 über Wikimedia Commons - [http://commons.wikimedia.org/wiki/File:Quartz\\_Br%C3%A9sil.jpg#mediaviewer/File:Quartz\\_Br%C3%A9sil.jpg](http://commons.wikimedia.org/wiki/File:Quartz_Br%C3%A9sil.jpg#mediaviewer/File:Quartz_Br%C3%A9sil.jpg)





# A LOOK INSIDE THE CELLULAR PHONE - RAW MATERIALS CHECK



picture rare earths: "Rareearthoxides" by Peggy Greb, US department of agriculture. Original uploader was MaterialsScientist at en.wikipedia - Bild picture Indium: Transferred from en.wikipedia(Original text : <http://www.ars.usda.gov/is/graphics/photos/jun05/d115-1.htm>). Licensed under Public Domain via Wikimedia Commons - <http://commons.wikimedia.org/wiki/File:Rareearthoxides.jpg#mediaviewer/File:Rareearthoxides.jpg> Bild Indium: <http://images-of-elements.com/pse/indium.php> picture Beryllium: „Beryllium (Be)" by Hi-Res Images of Chemical Elements - <http://images-of-elements.com/beryllium.php>. Licensed under CC BY 3.0 via Wikimedia Commons - [http://commons.wikimedia.org/wiki/File:Beryllium\\_\(Be\).jpg#mediaviewer/File:Beryllium\\_\(Be\).jpg](http://commons.wikimedia.org/wiki/File:Beryllium_(Be).jpg#mediaviewer/File:Beryllium_(Be).jpg)

# >>> RAW MATERIALS TRAVEL VISUALIZATION OF THE MINING AREAS OF RAW MATERIALS

The participants know where the different raw materials are mined which are used in their cellular phones.

In the plenary, the participants mutually discuss topics and review them in small groups using cards. The results are displayed on a world map.

## Preparation

The raw materials cards are created as described in the copy template (see copy template). A large world map will be attached prominently in the room.

## Implementation

The participants decide within the plenary, from which country the raw materials originate, which are used in their cellular phone.


Then the participants are divided into groups. Use the front and back of the raw material cards, to check whether their thoughts were correct.

Back in the plenary, the participants will search for the countries of origin on the world map and mark them with the corresponding resource card.


## Evaluation

The evaluation is based on the commodity cards, which enable the correct allocation of the commodity and country of origin. It will become clear that the raw materials used in cellular phone originate from different countries. The main producing countries are as follows:

- Aluminium (Al) - China, Russia, Canada, Brazil

 Plenary, group work

 15 Min.

 Raw materials cards (copy template), scissors, glue world map, magnets or pins

- Beryllium (Be) - USA
- Cobalt (Co) - Congo, Canada, China, Russia, Zambia
- Gallium (Ga) - China, Kazakhstan, Ukraine
- Gold (Au) - China, United States, Australia, South Africa, Ghana
- Indium (In) - China, Japan, Canada, Korea
- Copper (Cu) - Chile, Peru, United States, Indonesia
- Lithium (Li) - Chile, Bolivia, United States, Argentina, Tibet
- Platinum (Pt) - South Africa, Russia, Canada
- Rare earth (RE) - China, India, Brazil
- Silicon (Si) - China, Russia, United States
- Tantalum (Ta) - Brazil, Australia, Congo, Mozambique, Rwanda

## Possibilities for further work

It makes sense to stimulate the first thoughts about the mining of raw materials in the different countries. To deepen this topical aspect, methods such as the „Copper, Coltan and co.“ or the „active lecture“ are suitable: „From the raw material to the component“.



# RAW MATERIALS TRAVEL

**ALUMINIUM (AL)**

**CHINA, RUSSIA, CANADA,  
BRAZIL**

**BERYLLIUM (BE)**

**USA**

**COBALT (CO)**

**CONGO, CANADA, CHINA,  
RUSSIA, ZAMBIA**

**GALLIUM (GA)**

**CHINA, KAZAKHSTAN,  
UKRAINE**

**GOLD (AU)**

**SOUTH AFRICA, CHINA,  
USA, AUSTRALIA, GHANA**

**INDIUM (IN)**

**CHINA, JAPAN, CANADA,  
KOREA**

2.





# RAW MATERIALS TRAVEL



**COPPER (CU)**

**CHILE, PERU, USA,  
INDONESIA**

**LITHIUM (LI)**

**CHILE, BOLIVIA, USA,  
ARGENTINA, TIBET**

**PLATINUM (PT)**

**SOUTH AFRICA**

**RARE EARTHS (SEE)**

**CHINA, INDIA, BRASIL**

**SILICIUM (SI)**

**CHINA, RUSSIA, USA**

**TANTALUM (TA)**


**BRASIL, AUSTRALIA, CONGO  
MOZAMBIQUE, RWANDA**

# >>> COPPER, COLTAN AND CO. GROUP WORK AND INTERNET RESEARCH ON THE MINING CONDITIONS FOR RAW MATERIALS

The participants know how and under what conditions the raw material Copper is mined. You can label differences regarding the mining conditions of one and the same raw material in different countries, and through this recognize the relevance of the origin labelling for raw materials.

 Group work, plenary

 75 Min.

 Work assignments, fact sheet poster template (copy template), computers or cellular phone with Internet access, flipchart paper, pens

The participants will perform the research in groups to find information about the Copper mining in Chile and Indonesia, and then they will prepare the acquired knowledge in the form of a fact sheet and present this to a plenary.

## **Preparation (5 Min.)**

The work assignments (see copy template) as well as the fact sheet template for the group work will be printed out (see copy template).

Computers with Internet access are provided if the participants are unable to perform the research using the smartphone.

## **Teamwork (30 Min.)**

The participants are divided into four groups:

- 1. Group: Copper/Chile
- 2. Group: Copper/Chile
- 3. Group: Copper/Indonesia
- 4. Group: Copper/Indonesia

Each group will receive the appropriate work assignment and the fact sheet. After all open questions have been resolved, the groups will work on their assignments and create their fact sheets.

## **Presentation und Discussion in two Groups: (25 Min.)**

After about 30 minutes the groups 1 and 3, as well as the groups 2 and 4 will gather in different corners of the room. You will present your fact sheets to each other and then compare the mining conditions of Copper in Chile on the one hand and in Indonesia on the other hand. For this, the teacher will assign the following questions to the groups:

- Where to see differences and similarities?
- What different kinds of effects do the mining

conditions have for the workers inside the mines, for the people in the vicinity of the mines and the environment?

The two groups each record their findings in bullet points on a flipchart paper and then return to the plenary.

## **Evaluation (15 Min.)**

As they are called up by the teacher, the participants will present their results of the group work. These will be recorded in writing by the teacher. Subsequently, they will discuss the following question:

- Do you regard a compulsory labelling for the origin of raw materials as appropriate/feasible?

The created materials can then be hung up in the showcase „raw materials“ (see method „What’s App?!“).

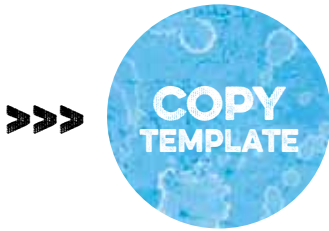
## **Tips for the teacher**

Because the search links provided on the worksheet can only be used in the German-speaking countries, it is advisable to research relevant links for other source languages and to provide them accordingly before attempting to implement the method.

It also makes sense to transition directly to a method from the area of „Alternative courses of action“ from the discussion.

## **Versions**

If more time is available, the search can be extended to more raw materials / mining countries. Work assignments for the topics of Coltan / Congo and Gold / Ghana are also available as a copy template (see copy template).



# COPPER, COLTAN AND CO. WORK ASSIGNMENTS

## WORK ASSIGNMENTS 1 AND 2: COPPER MINING IN CHILE

About 60 different substances can be found in a cellular phone. The materials must be mined, smelted, and prepared before a cellular phone is assembled through the individual components. Hereby, enormous amounts of raw materials are moved, with a dramatic impact for humans and the environment. In 2011, according to estimates approx. 16,000 tons of Copper was used for the cellular phone manufacturing.

### Work assignment for the group work

Now, fill out the fact sheet on the Copper mining in Chile in your small group. First, consider which one of you would like to work on and research which topical aspects. For the following research, you may use your cellular phone or a computer.

### Work assignment for the presentation

Subsequently, prepare the presentation of your results. The fact sheet can hereby serve as an orientation for you. Please, make sure that all group members are involved in the presentation.

### Links for the search in the German-speaking countries: Copper:

[de.wikipedia.org/wiki/Kupfer](http://de.wikipedia.org/wiki/Kupfer)

### Chile:

[de.wikipedia.org/wiki/Chile](http://de.wikipedia.org/wiki/Chile)

[de.wikipedia.org/wiki/Chuquicamata](http://de.wikipedia.org/wiki/Chuquicamata)

[glokal.rgeo.de/cms/p/boden\\_global\\_kupfer01\\_kupfertagebaue/](http://glokal.rgeo.de/cms/p/boden_global_kupfer01_kupfertagebaue/)

### Working conditions:

[de.wikipedia.org/wiki/Chuquicamata](http://de.wikipedia.org/wiki/Chuquicamata)

[welt.de/print-welt/article658070/Wer-das-Kupfer-hat.html](http://welt.de/print-welt/article658070/Wer-das-Kupfer-hat.html)

### Consequences for humans and the environment

[de.wikipedia.org/wiki/Chuquicamata](http://de.wikipedia.org/wiki/Chuquicamata)

[welt.de/print-welt/article658070/Wer-das-Kupfer-hat.html](http://welt.de/print-welt/article658070/Wer-das-Kupfer-hat.html)

## WORK ASSIGNMENTS 3 AND 4: COPPER MINING IN INDONESIA

About 60 different substances can be found in a cellular phone. The materials must be mined, smelted, and prepared before a cellular phone is assembled through the individual components. Hereby, enormous amounts of raw materials are moved, with a dramatic impact for humans and the environment. In 2011, according to estimates approx. 16,000 tons of Copper was used for the cellular phone manufacturing.

### Work assignment for the group work

Now, fill out the fact sheet on the Copper mining in Indonesia in your small group. First, consider which one of you would like to work on and research which topical aspects. For the following research, you may use your cellular phone or a computer.

### Work assignment for the presentation

Subsequently, prepare the presentation of your results. The fact sheet can hereby serve as an orientation for you. Please, make sure that all group members are involved in the presentation.

### Links for the search in the German-speaking countries

#### Copper:

[de.wikipedia.org/wiki/Kupfer](http://de.wikipedia.org/wiki/Kupfer)

### Indonesia:

[de.wikipedia.org/wiki/Indonesien](http://de.wikipedia.org/wiki/Indonesien)

[de.wikipedia.org/wiki/Grasberg-Mine](http://de.wikipedia.org/wiki/Grasberg-Mine)

### Working conditions:

[www.proge.at/servlet/ContentServer?pagename=P01/Page/Index&n=P01\\_5.b.a&cid=1324476442410](http://www.proge.at/servlet/ContentServer?pagename=P01/Page/Index&n=P01_5.b.a&cid=1324476442410)

### Working conditions and consequences for humans and the environment

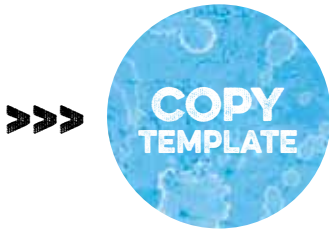
[faz.net/aktuell/finanzen/devisen-rohstoffe/indonesien-groesste-mine-der-welt-geschlossen-12213483.html](http://faz.net/aktuell/finanzen/devisen-rohstoffe/indonesien-groesste-mine-der-welt-geschlossen-12213483.html)

[2.klett.de/sixcms/list.php?page=miniinfothek&miniinfothek=gographie%20infothek&node=Rohstoffe&article=Ressourcenfluch+-+Die+Grasberg-Mine+in+West-Papua](http://2.klett.de/sixcms/list.php?page=miniinfothek&miniinfothek=gographie%20infothek&node=Rohstoffe&article=Ressourcenfluch+-+Die+Grasberg-Mine+in+West-Papua)

### Consequences for humans and the environment

[www.west-papua-netz.de/index.php/mID/3.4/lan/de](http://www.west-papua-netz.de/index.php/mID/3.4/lan/de)

[de.wikipedia.org/wiki/Grasberg-Mine](http://de.wikipedia.org/wiki/Grasberg-Mine)



## COPPER, COLTAN AND CO. WORK ASSIGNMENTS

### >>> WORK ASSIGNMENTS: COLTAN MINING IN THE CONGO

About 60 different substances can be found in a cellular phone. The materials must be mined, smelted, and prepared before a cellular phone is assembled through the individual components. Hereby, enormous amounts of raw materials are moved, with a dramatic impact for humans and the environment.

#### **Work assignment for the group work**

Now, fill out the fact sheet on the Coltan mining in the Congo in your small group. First, consider which one of you would like to work on and research which topical aspects. For the following research, you may use your cellular phone or a computer.

#### **Work assignment for the presentation**

Subsequently, prepare the presentation of your results. The fact sheet can hereby serve as an orientation for you. Please, make sure that all group members are involved in the presentation.

#### **Following sites on the Internet can help you:**

##### **Coltan/ Tantalum:**

[en.wikipedia.org/wiki/Coltan](http://en.wikipedia.org/wiki/Coltan)

[gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html](http://gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html)

##### **Kongo**

[de.wikipedia.org/wiki/Kongo](http://de.wikipedia.org/wiki/Kongo)

[gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html](http://gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html)

##### **Working conditions**

[gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html](http://gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html)

[scinexx.de/dossier-detail-443-7.html](http://scinexx.de/dossier-detail-443-7.html)

##### **Consequences for humans and the environment**

[oroverde.de/regenwald-wissen/regenwaldprodukte/coltan-handly.html](http://oroverde.de/regenwald-wissen/regenwaldprodukte/coltan-handly.html)

[gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html](http://gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/coltan.html)

### >>> WORK ASSIGNMENTS: GOLD MINING IN GHANA

About 60 different substances can be found in a cellular phone. The materials must be mined, smelted, and prepared before a cellular phone is assembled through the individual components. Hereby, enormous amounts of raw materials are moved, with a dramatic impact for humans and the environment. In 2011, according to estimates approx. 43 tons of Gold were used for the cellular phone manufacturing

#### **Work assignment for the group work**

Now, fill out the fact sheet on the Gold mining in Ghana in your small group. First, consider which one of you would like to work on and research which topical aspects. For the following research, you may use your cellular phone or a computer.

#### **Work assignment for the presentation**

Subsequently, prepare the presentation of your results. The fact sheet can hereby serve as an orientation for you. Please, make sure that all group members are involved in the presentation.

#### **Following sites on the Internet can help you:**

##### **Gold:**

[en.wikipedia.org/wiki/Gold](http://en.wikipedia.org/wiki/Gold)

##### **Ghana**

[en.wikipedia.org/wiki/Ghana](http://en.wikipedia.org/wiki/Ghana)

##### **Working conditions**

[gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/gold.html](http://gesichter-afrikas.de/rohstoffe-ressourcen-in-afrika/metallische-rohstoffe/gold.html)

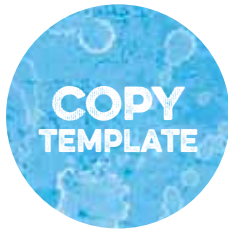
[aktiv-gegen-kinderarbeit.de/2013/11/](http://aktiv-gegen-kinderarbeit.de/2013/11/)

[fair-handeln-in-der-goldproduktion-ein-ding-der-unmoeglichkeit/](http://fair-handeln-in-der-goldproduktion-ein-ding-der-unmoeglichkeit/)

##### **Consequences for humans and the environment**

[germanwatch.org/zeitung/2006-2-ghana.htm](http://germanwatch.org/zeitung/2006-2-ghana.htm)

[magazin.cultura21.de/gesellschaft/welt/der-fluch-des-goldes.html](http://magazin.cultura21.de/gesellschaft/welt/der-fluch-des-goldes.html)



# COPPER, COLTAN AND CO. FACT SHEET

## RAW MATERIALS FACT SHEET

1. NAME OF THE RAW MATERIAL \_\_\_\_\_
2. CHEMICAL SYMBOL \_\_\_\_\_
3. PROPERTIES \_\_\_\_\_
4. USE IN THE CELLULAR PHONE \_\_\_\_\_
5. WEIGHT PORTION IN THE CELLULAR PHONE \_\_\_\_\_
6. OCCURRENCE / COUNTRIES \_\_\_\_\_  
\_\_\_\_\_
7. WORLD MARKET PRICE \_\_\_\_\_
8. RECYCLABLE TO... % \_\_\_\_\_  
\_\_\_\_\_

## WORKING CONDITIONS IN THE MINE

9. INDUSTRIAL OR ARTISAN MINING? \_\_\_\_\_  
\_\_\_\_\_
10. ACTIVITY OF THE MINERS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
11. WORKPLACE \_\_\_\_\_  
\_\_\_\_\_
12. WORKING TIME \_\_\_\_\_
13. REMUNERATION \_\_\_\_\_
14. LEAVE ENTITLEMENT \_\_\_\_\_
15. SICKNESS BENEFIT \_\_\_\_\_
16. EMPLOYMENT TERMINATION NOTICE PERIODS \_\_\_\_\_
17. OCCUPATIONAL SAFETY AND HEALTH \_\_\_\_\_
18. TRADE UNIONS \_\_\_\_\_  
\_\_\_\_\_





# COPPER, COLTAN AND CO. FACT SHEET

## COUNTRIES FACT SHEET

1. NAME OF THE COUNTRY \_\_\_\_\_
2. FLAG \_\_\_\_\_
3. CAPITAL CITY \_\_\_\_\_
4. CONTINENT \_\_\_\_\_
5. NUMBER OF INHABITANTS IN MILLIONS \_\_\_\_\_
6. AREA IN SQ. KM \_\_\_\_\_
7. LANGUAGES \_\_\_\_\_
8. SPECIAL GEOGRAPHICAL FEATURES \_\_\_\_\_
9. LOCATION OF THE MINES \_\_\_\_\_

## CONSEQUENCES FOR HUMANS AND THE ENVIRONMENT

10. HEALTH CONSEQUENCES \_\_\_\_\_
11. SOCIAL CONSEQUENCES \_\_\_\_\_
12. ECOLOGICAL CONSEQUENCES \_\_\_\_\_

## IN ADDITION:

13. WHAT IS THE COMPULSORY LABELLING FOR THE ORIGIN OF RAW MATERIALS? \_\_\_\_\_
14. WHAT INITIATIVES ARE AIMED AT CREATING MORE TRANSPARENCY IN THE RAW MATER SECTOR? \_\_\_\_\_

# >>> PRODUCTION

## **General information on the subject of production**

It is very difficult to reconstruct how the processing of raw materials to individual components of a cellular phone is conducted, due to the intransparency that continues to prevail in the area of raw material mining and processing. The production of individual components such as the housing, the chips or the display, as well as the assembly of the final product is mainly carried out in Asia. The actual production is made not directly performed by the manufacturer, as they continue to increase their focus on research, the development of products and marketing strategies. The production is outsourced to

suppliers, which in recent years have often evolved into multinational corporations themselves. By far, the world's biggest supplier is Foxconn. Salcomp, Qualcomm and Flextronics are regarded as further major companies in this area. There is a great competition pressure among the suppliers, which is also the reason why they are trying to keep the production costs as low as possible. To increase the attractiveness as a production location, the wages of workers are therefore often lowered or, as in the South Indian Chennai free zones for the export are established. In these zones, duty-free imports of components and the wholly or largely tax-free export of finished products is guaranteed.<sup>36</sup>

# >>> WORKING CONDITIONS IN THE CELLULAR PHONE PRODUCTION

## **Low wage level**

The factories primarily manufacture in countries with a very low wage level. Almost 50% of the cellular phones being used worldwide were assembled in China. Rising labour costs are currently causing a shifting of the production into countries with even lower wages such as Vietnam and India.<sup>37</sup> Often, workers in the respective countries do not receive the minimum wage prescribed, and even if they do it is often not enough to meet their basic needs.<sup>38</sup> In addition, there are often wage deductions for meals and accommodation. Young women, often migrant workers, are preferably hired because they receive the lowest wages.<sup>39</sup>

## **Long and irregular working hours**

Extremely long and irregular working hours, which go beyond the legal provisions, are often common practice in the supplier factories.<sup>40</sup> At peak times, it is not uncommon that employees work up to twelve hours a day on six to seven days a week. The statutory rest periods are also often not observed.<sup>41</sup>

## **Lack of occupational safety**

The health of employees is jeopardized, among other things by working with chemicals and toxic materials such as Copper, nickel and chrome.<sup>42</sup> In addition, there is a high risk of accidents in the factories because safety regulations are not respected, or there is no or only insufficient protective clothing is provided.<sup>43</sup> In addition, there is a high risk of accidents in the factories because safety regulations are not respected, or there is no or only insufficient protective clothing is provided.<sup>44</sup>

## **Restriction of workers' rights**

Workers' rights, such as the right to social security benefits and insurances, are restricted for many workers who were hired as contract workers and do not have any proper work contract.<sup>45</sup> Temporary workers often also receive lower wages than their permanently employed colleagues, since a part of the remuneration is withheld by recruitment agencies.<sup>46</sup> During the training phase, the work of interns is only remunerated very low or not at all. Trade unions usually do not exist in China a few other Asian countries which have a manufacturing industry, making it very difficult or even impossible for the employees to demand their workers' rights.<sup>47</sup>

## **The case of Foxconn and Apple**

### **Foxconn**

Foxconn, a subsidiary of the Taiwanese company Hon Hai Precision Industry, is the world's largest contract manufacturer of electronics and computer parts. In 2011, approximately 50% of the electronics products worldwide were manufactured by Foxconn. The company is considered to be the world's largest industrial employer with approx. 1.3 million employees. The largest part of the production is carried out in China, and further production sites are located among others in the United States, India, Britain and Brazil. Customers include Apple, Amazon, Dell and Hewlett-Packard.<sup>48</sup>

<sup>36</sup>comp. Südwind 2012, p.15f

<sup>37</sup>comp. Südwind 2012, p.12

<sup>38</sup>comp. Südwind 2012, p.14

<sup>39</sup>comp. BMBF 2012, p.18

<sup>40</sup>comp. Südwind 2012, p.13

<sup>41</sup>comp. Südwind 2012, p.13

<sup>42</sup>comp. Germanwatch 2008

<sup>43</sup>comp. Südwind 2012, p.13

<sup>44</sup>comp. Südwind 2012, p.14

<sup>45</sup>comp. Südwind 2012, p.14

<sup>46</sup>comp. Germanwatch 2008

<sup>47</sup>comp. BMBF 2012, p.18

<sup>48</sup>comp. Südwind 2012, p.15

## Apple

Apple is a globally active company in the computer industry, which is headquartered in the State of California in the United States. The European headquarters is located in Ireland. Apple was founded in 1976.<sup>49</sup> Today the US company is one of the most successful companies around the world in terms of economics, and is in the focus of public interest due to its innovative products.<sup>50</sup>

## Criticism towards Apple and Foxconn

Apple and Foxconn were repeatedly criticized due to the production conditions in the factories. The work conditions in two Foxconn factories were already criticised in 2006 through a report by the British newspaper „Mail on Sunday“.<sup>51</sup> In addition to the 15 hour workdays and pay equivalent to 40 euros a month, the quasi-military structures, the monitoring of workers as well as their cramped living conditions were criticized. A series of suicides among Foxconn workers in the year 2010, where 14 people aged between 18 and 24 years took their own lives, brought the working conditions into the headlines once again and forced Apple and Foxconn to react appropriately.<sup>52</sup>

## Reactions from Apple

In 2011 Apple responded to public pressure by publishing a far-reaching code of conduct, as well as annual reports on its suppliers.<sup>53</sup> In the year 2012, in addition to the report on its suppliers Apple<sup>54</sup> also disclosed its supply chain. Furthermore the company joined the Fair Labour Association (FLA), which was founded in 1999 and represents a coalition of universities, NGOs and companies who are engaged worldwide to create better working conditions. Apple agreed to the reviewing of three Foxconn factories by the FLA and announced that more suppliers will be included in the inspection.<sup>55</sup> Regarding the working hours, the examination results clearly demonstrate violations against the Chinese labour law, and also against the guidelines specified by the FLA. Regarding wage levels, it was found that this is above the Chinese minimum wage, however, some workers were not properly paid for over-time. In terms of labour relations and the integration of workers it has been pointed out that the trade union committees are mainly staffed with people which hold high-level positions within the respective the company, and that only the management nominated the people who could be elected. According to the examination, there were also problems for migrant workers regarding the collection of their work-related accident and social security claims, because these assistance service contracts were closed on the provincial level and to date are non-transferable. The report also addressed the use of trainees. They had to work over-time and night shifts, which violates the Chinese labour law. In addition, they

don't receive any social insurance, since they do not count as employees according to Chinese law.<sup>56</sup>

As a response to the examination report, Apple and Foxconn mutually agreed with the FLA to eliminate the abuses until the beginning of July 2013..<sup>57</sup>

Against this positive assessment it must however be stated, that only three of the approx. 150 suppliers of Apple were included in the investigation, and the greater part of the Apple production has not been investigated to date. Apple's given promise to expand the investigation to other suppliers in spring 2012, was not implemented until the end of 2013. In May 2013, it was rather announced that Apple is shifting a large part of its production from Foxconn to Pegatron, since this company is willing to manufacture at a lower cost. A study of the company's factories conducted in 2013 by the China labour Watch (CLW) revealed even greater abuses than in the Foxconn factories<sup>59</sup>

## Reactions from Foxconn

Foxconn responded to the suicide series by attaching nets to the factories as a protective measure. To improve the working conditions of the workers, wages were increased and the number of over-time hours reduced<sup>60</sup>. Additionally the restructuring of the corporate group was expedited, to cope with the phenomenon of migrant workers and the related problems. Thus, factories were relocated from the coastal areas into the home region of the migrant workers, deep within the country<sup>61</sup>.

In connection with the wage increase and the reduction of over-times, it must be pointed that this also increased the production requirements, and therefore didn't always improve the situation for the workers.<sup>62</sup> Also with regard to the relocation of production sites into the inner parts of the country, it should be pointed out that Foxconn has benefited through the lower labour costs there, and that workers were often forced to relocate and work for a lower wage at the new site through threats of employment termination<sup>63</sup>.

## Classification of the criticism

The above stated allegations don't just focus on Foxconn and Apple, they can also be conveyed to other suppliers and manufacturers. The working conditions seem to be even worse, especially for smaller suppliers. As the reason stated for this is that in order to remain competitive, suppliers must operate with very low profit margins, as opposed to the manufacturers, and thus convey the resulting pressure onto their employees. The criticism directed towards manufacturers is often focused on Apple because it is currently a strongly expanding company, and additionally has profit margins which are far beyond the industry average<sup>64</sup>.

<sup>49</sup>comp. Apfel Wiki 2013

<sup>50</sup>comp. Germanwatch 2013, p.4

<sup>51</sup>comp. Mail online o.J.

<sup>52</sup>comp. Germanwatch 2013, p.4

<sup>53</sup>comp. Germanwatch 2013,p.11

<sup>54</sup>comp. Apple 2014

<sup>55</sup>comp. Germanwatch 2013, p.11

<sup>56</sup>comp. Fair Labor Association o.J.

<sup>57</sup>comp. Germanwatch 2013, p.17

<sup>58</sup>comp. Germanwatch 2013, p.14

<sup>59</sup>comp. Germanwatch 2013, p.17

<sup>60</sup>comp. Germanwatch 2013, p.18

<sup>61</sup>comp. Südwind 2012, p.15

<sup>62</sup>comp. Germanwatch 2013, p.18

<sup>63</sup>comp. Gongchao 2013

# >>> REGULATIONS FOR THE IMPROVEMENT OF THE WORK CONDITIONS

## State regulations

The working conditions are regulated primarily by national legislation. Chinese labour law, for example, also prescribes a maximum weekly work time of 40 hours and a maximum of over-time of 36 hours a month.<sup>65</sup> Up till now it has only been possible to sue local factories for violations against the national labour law. To expand the liability to all parties involved in the manufacturing process, solution approaches are being searched for on an international level<sup>66</sup>.

## International regulations

### The United Nations

on the written report of the Special Representative for Economy and Human Rights, Mr. John Ruggie<sup>67</sup>. In it, he demands that companies commit themselves to their „due diligence“ and ensure that throughout their daily business practice national laws and basic human rights are respected in all business processes.<sup>68</sup> These guidelines are not binding laws, however, they serve as a guideline for the negotiations regarding the necessary minimum standards for the protection of human rights<sup>69</sup>.

### The Organisation for Economic Cooperation and Development (OECD)

The OECD, an Association of currently 34 industrial and emerging-market countries, adopted the term „due diligence“ in 2011 for the revision of the OECD guidelines for multinational enterprises. It also urges the company to guarantee the enforcement of human rights in their business relationships<sup>70</sup>. The provisions of the OECD are also only recommendations to the companies from the member states. To date, there is no comprehensive sanctions mechanism in case violations are detected for a corporate group<sup>71</sup>.

### The International Labour Organization (ILO)

As minimum standards, the ILO has set several conventions in the form of core labour standards which are binding for all member countries. However, the ILO also doesn't have any possibility to sanction breaches of conventions<sup>73</sup>.

## Regulations of the industry

### Global e-Sustainability Initiative (GeSI)

In 2001, international manufacturers of information and telecommunications technology established the Global e-Sustainability Initiative (GeSI) in response to the demand for more sustainability within their industry<sup>74</sup> founded. The aim of the merger is the promotion of a sustainable development of the

sector.<sup>75</sup>

### Industry Citizenship Coalition (EICC)

founded. The aim of the merger is the promotion of a sustainable development of the sector (EICC)<sup>76</sup>. It was founded in 2004, to improve the social, economic and ecological conditions for the production of electronic products. For this, a code of conduct has been established, which should apply for the entire value chain. Currently, more than 60 large international electronics companies are members of the EICC. Among other things, this code of conduct prescribes more secure working conditions for the entire supply chain, a dignified treatment of workers as well as environmentally-friendly and ethically acceptable business processes.<sup>77</sup>

### Alternative courses of action

#### At the level of the manufacturers

#### Increase of the unit prices

An important reason why the suppliers don't implement minimum standards in the area of working conditions, are the unit prices required by the manufacturers. These are so minute that the resulting enormous price and time pressure of the suppliers is passed on to their workers through low wages and long working hours. Hereby, an increase of the wages would only have a relatively small impact on the overall production price, based on the margins calculated by the company. For example, for the iPhone 5 which was introduced to the market in the autumn of 2012, the production costs amount to only 160Euro, with a share of EUR 6.23 EUR for the assembly of the cellular phone. Even if it is taken into account that the cost of the software for the unit, the advertising and retailing are not included in the retail price of €679, there will still be in a considerable profit margin which could be applied to the financing of improvements within the production chain<sup>78</sup>.

#### On the level of the network operators

#### Offering of new contract models (SIM only)

At first glance, the cellular phone network operators can't be directly linked to the abuses in the production, however, their business practices contribute to the increase in cellular phone sales and thus support the existing production circumstances. Thus, many cellular phone contracts offer the option to receive a new cellular phone model after just a short time. Through a sustainable business model, in which consumers are rewarded for continuing to use their old cellular phone (SIM only), could be able to lower the demand for new devices<sup>80</sup>.

<sup>64</sup>comp. Südwind 2012, p.14

<sup>65</sup>comp. Germanwatch 2013, p.13

<sup>66</sup>comp. Südwind 2012, p.23

<sup>67</sup>comp. Südwind 2012, p.18

<sup>68</sup>comp. Südwind 2012, p.4

<sup>69</sup>comp. Südwind 2012, p.18

<sup>70</sup>comp. OECD 2011

<sup>71</sup>comp. Südwind 2012, p.18

<sup>72</sup>comp. Internationale Arbeitsorganisation 2006

<sup>73</sup>comp. Südwind 2012, p.19

<sup>74</sup>comp. Global e-Sustainability Initiative 2014

<sup>75</sup>comp. Südwind 2012, p.23

<sup>76</sup>comp. Electronic Industry Citizenship Coalition 2012

<sup>77</sup>comp. Südwind 2012, p.23

### **Provision of information about sustainability efforts**

Network operators also have the option of exerting more pressure on the suppliers than before, through an open communication regarding the social and environmental problems in conjunction with the production. They could, for example, publish information about the manufacturer's sustainability efforts in their stores, so that consumers can include this information in their purchase decision<sup>81</sup>.

### **At the level of the consumers**

#### **Demand for rewarding the continued use of the cellular phone**

Consumers can encourage their network operators to reward the continued use of their cellular phones when their cellular phone service contract is concluded or in case of a contract change<sup>82</sup>.

#### **Exerting pressure on manufacturers**

Also, they are able to increase the pressure on their manufacturers to facilitate fair working conditions, by directly approaching them with their claims, or by supporting initiatives and campaigns which pursue this aim.

## **SOURCES USED**

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- Gongchao 2013: <http://www.gongchao.org/de/slaves-buch/ein-foxconn-manager-erzaehlt> (zuletzt abgerufen 04.03.2014)
- Internationale Arbeitsorganisation 2006: <http://www.ilo.org/berlin/arbeits-und-standards/lang--de/index.htm> (zuletzt abgerufen 04.03.2014)
- Mail online o.J.: <http://www.dailymail.co.uk/news/article-401234/The-stark-reality-iPods-Chinese-factories.html> (zuletzt abgerufen 04.03.2014)

<sup>78</sup>It can be assumed, that this ratio of wage costs compared to the final price is also similar with other manufacturers. (comp. Südwind 2012, p.25)

<sup>79</sup>comp. Südwind 2012, p.25

<sup>80</sup>comp. Südwind 2012, p.25

<sup>81</sup>comp. Südwind 2012, p.25

<sup>82</sup>comp. Südwind 2012, p.26

## >>> FROM THE RAW MATERIAL TO THE COMPONENT: ACTIVE LECTURE ON THE PRODUCTION CHAIN OF CELLULAR PHONES

The participants know how the components of a cellular phone are created from the various raw materials. Within the scope of an interactive presentation, participants will discover the route of raw materials, up to the point where they are available as processed materials in the individual components.

### Preparation

The script for the active presentation will be printed out (see copy template 7).

The necessary materials for the visualization will be selected and provided.

### Implementation

Based on the script, the teacher will outline how the components for a cellular phone are created from the various raw materials. Various materials (raw materials, images, mobile devices) will be used for the visualization. Hereby it will become evident that not every work step can be traced and evidenced, due to the prevailing intransparency in the raw materials sector.

 Lecture

 10 Min.

 Script active lecture and pictures (copy template), materials as described on the copy template

### Tips for the teacher

The active presentation should be conducted as freely and lively as possible.

The participants should wait until the end of the active presentation to state their questions and comments.

### Possibilities for further work

The intransparency prevailing in the raw material sector, its consequences and possible solutions can be addressed and discussed after the active presentation.

## >>> MADE IN... DETERMINATION OF CELLULAR PHONE PRODUCTION FACILITIES

The participants know in which countries the cellular phone components are manufactured. The participants will examine their own cellular phone or individual components for indications regarding the production countries.

### Preparation


Individual cellular phone components will be provided. A large world map will be attached prominently in the room.

### Implementation

Participants will either examine their own cellular phone or the cellular phone components provided for indications as to where these were manufactured. They will visualise the origin countries of the parts, by placing pins on the world map.

 Individual work, plenary

 5 Min.

 Cellular phones of the participants, cellular phone components, magnets or pins, world map

### Evaluation

The results of the examination will be analysed in a class discussion. The discussion may orient itself in line with the following questions:

- In which countries are most cellular phones manufactured?
- What key areas become evident?
- Which countries do not emerge as a production location?

Components from the cellular phone disassembly can be used for the determination of the production location.



# FROM THE RAW MATERIAL TO THE COMPONENT

## Overview of the transport chain of raw materials

### Industrial mining

- 1) Raw material
- 2a) Mining in an industrial mining operation
- 3a) Transport/by truck
  
- 6) Processing
- 7) Melting
- 8) Finished metal
- 9) Sale on the world market
- 10) Transport to the supplier company
- 11) further processing into a cellular phone part

### Small mining operation

- 1) Raw material
- 2b) Mining in a small mining operation
- 3b) Transport/on foot
- 4) Sale to intermediate merchants
- 5) Transport/by truck, airplane, ship
- 6) Processing
- 7) Melting
- 8) Finished metal
- 9) Sale on the world market
- 10) Transport to the supplier company
- 11) further processing into a cellular phone part

**Materials to show during the lecture -**  
**The materials marked have to be provided in advance.**

**Rock containing ore, e.g. Copper**

Picture 1 (copy template)

Picture 2 (copy template)

Place ore-containing rock onto **toy trucks** and let them drive

place ore-containing rock inside a **bag**

Put the bags aside, and show a few **play-money coins**

Load the bag with rocks onto a **toy ship**, drive away, show many play-money coins, and hold up a sign with a „question mark“ (copy template)

## Script for the active presentation „From the raw material to the component“

Introduction: „Cellular phones have a complex value chain, ranging from the mining and processing of the raw material, to the trade of the components and the marketing of the cellular phone, all the way up to the purchase, use and ultimately the disposal or recycling of the device. The following 10 minutes will focus on a portion of this chain with the title: „From the raw material to the component“.

- 1) The raw material is finely distributed or in the form of a layer in the rock.
- 2a) The raw material is mined industrially in an open pit. Initially, the rock is loosened by blasting. Huge excavators, with shovels as large as bungalows, load the ore containing rock onto trucks.
- 2b) The raw material is mined by prospectors in a small mining operation. The workers of the small mining operation often work under difficult conditions, and in poorly secured mines. They use simple utensils or even their bare hands to dig tunnels and to remove the ore. The risk of accidents and health implications are very high.
- 3a) Per load, a truck can transport up to 400 tons of rock across winding paths from the mine to the nearby processing plant.
- 3b) The rock is transported by the small mining operation workers on foot out of the mines, and sometimes carried for several days through impassable areas.
- 4) The small mining operation workers are forced to sell the rock for a very low price to intermediary traders.
- 5) The intermediary traders transport the rock out of the country and sell it with a big margin. Through the activities of the intermediary traders the exact origin of raw material can hardly be traced. The chain is intransparent.



# FROM THE RAW MATERIAL TO THE COMPONENT

## Materials to show.

The materials marked have to be provided in advance.

Picture 3 (copy template)

Picture 4 (copy template)

Show a metal, e.g., Copper

Show a sign with the stock chart, name of the metal and the current price, for example, for Copper (copy template)

Place the metal onto a ship, and set sail

Show cellular phone components, for example, the printed circuit board in which Copper is used

## Text of the lecture

6) In the processing, the ore-containing rock is crushed coarse and finely, screened and cleaned.

7) During the subsequent smelting, the rock is chemically processed and melted at very high temperatures.

8) This creates an almost pure metal.

9) This will be available for sale on the world market.

10) The metal is transported to the buyer.

11) The suppliers purchase the metal and process it to the individual cellular phone components such as the housing, chips and the displays. The actual production is not directly performed by the manufacturer, as these continue to increase their focus on research, the development of products and marketing strategies. The production



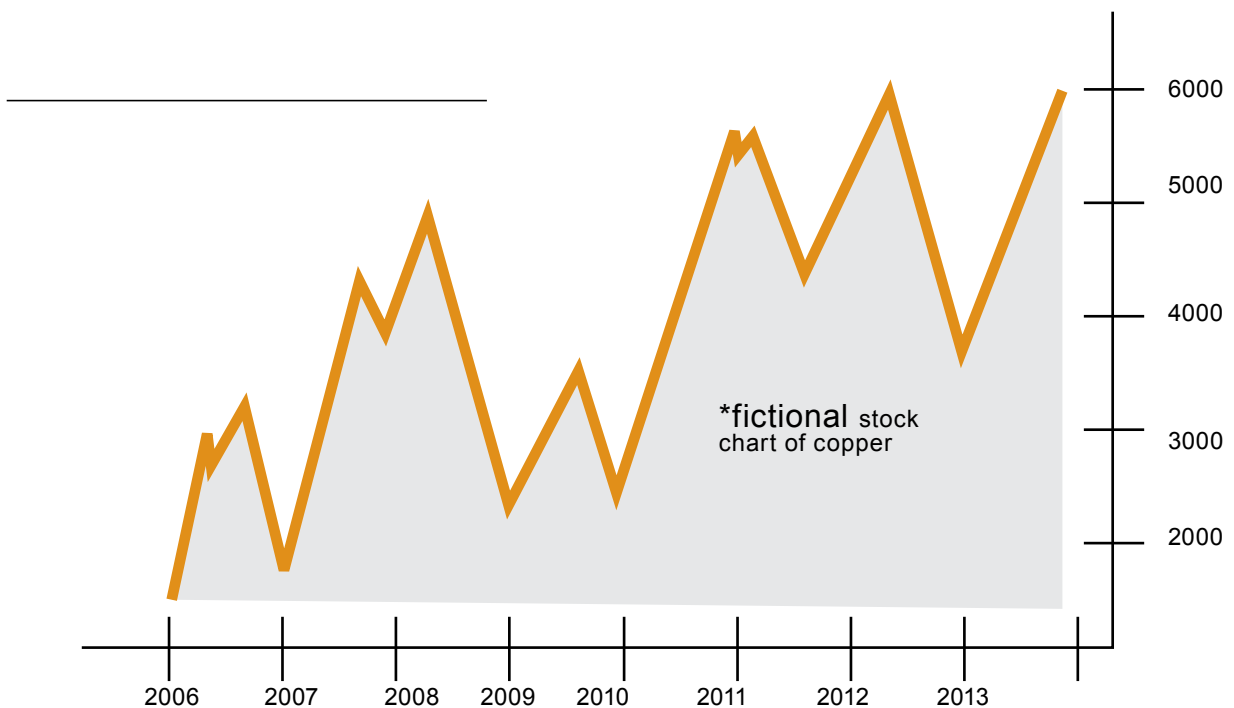


# FROM THE RAW MATERIAL TO THE COMPONENT



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# FROM THE RAW MATERIAL TO THE COMPONENT



**PICTURE 1**

*Mina Sur de Chuquicamata (no es la mina Principal, Chile) Modified by Tennen-Gas, license: GFDL and cc-by-sa-2.5,2.0,1.0: [es.wikipedia.org/wiki/Chuquicamata]*



**PICTURE 2**

*Luwowo Coltan mine near Rubaya, North Kivu the 18th of March 2014. © MONUSCO/Sylvain Liechti [www.flickr.com/photos/monusco]*



# FROM THE RAW MATERIAL TO THE COMPONENT



**PICTURE 3**

*Mina Sur de Chuquicamata (no es la mina Principal, Chile) Modified by Tennen-Gas, license: GFDL and cc-by-sa-2.5,2.0,1.0: [es.wikipedia.org/wiki/Chuquicamata]*



**PICTURE 4**

*„SchmelzofenArbeiter“ von Giesserei Heunisch. Original uploader: Heunisch at de.wikipedia - Transferred from de.wikipedia; transferred to Commons by User:Wdwd using CommonsHelper.(Original text : Giesserei Heunisch). Lizenziert unter Gemeinfrei über Wikimedia Commons - [commons.wikimedia.org/wiki/File:SchmelzofenArbeiter.jpg#mediaviewer/File:SchmelzofenArbeiter.jpg]*

# >>> WORKERS' REPORT... TEXT ANALYSIS ON THE WORKING CONDITIONS IN THE CELLULAR PHONE PRODUCTION, AND TALK SHOW

The participants can name deficiencies in the production of cellular phones and formulate solutions. You may compare the acquired knowledge to your own conception of an ideal workday.

The participants will formulate their concepts of an ideal work day within the scope of a brainstorming. You will receive information on the topic of working conditions in the cellular phone production based on texts, and will discuss the individual aspects in groups. Within the scope of a talkshow you will consolidate the results of the respective group work, and through this receive an overview of the topic and possible solutions.

## Preparation Brainstorming

Following categories are recorded as headings on moderation cards:

- Working time
- Remuneration
- Occupational safety and health

Following questions are recorded on a flipchart paper:

- How long would you like to work on average per day?
- How high should your average remuneration be?
- How many days of vacation would you like to have in the year?
- How many hours of over-time are you willing work under which conditions?
- What is important to you regarding the subject of occupational safety and health?

## Preparation Group work


The work assignments (see copy template) and the texts (see copy template) for the group work will be printed out.

## Implementation Brainstorming (5 Min.)

The participants will answer the questions written on the flipchart paper. The teacher records the results in writing on moderation cards, and assigns them to the categories of working hours, remuneration and labour protection.

 Plenary, group work

 75 Min.

 Work assignments, texts and moderation card (copy template), flipchart paper, moderation cards, pins, pens

## Implementation Group work (45 Min.)

The participants are divided into four groups:

- 1. Group: remuneration
- 2. Group: occupational safety and health
- 3. Group: leadership style
- 4. Group: resistance

Each group will receive the appropriate work assignment. The individual groups will read their respective texts.

The teacher will move about the classroom and answer emerging comprehension questions.

After reading the stories, the participants will edit the questions in their small groups and record their results on the moderation cards. You will select a group member that will participate in the talk show.

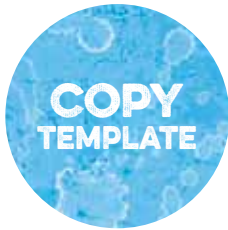
## Evaluation/ Talkshow (25 Min.)

The results of the group work are consolidated and presented within the scope of a talkshow. Chairs will be set up in the middle of the room for the talkshow guests. The teacher will assume the role of the moderator. As an introduction, the moderator will initially hold a brief introduction speech. The talkshow will be based on the topics listed on the moderation card of the moderator. The talkshow will be concluded on the part of the moderator with a brief summary of the statements.

The created materials can then be hung up in the showcase „Production“ (see method „What's App?!“).

## Possibilities for further work

The results of the group work are consolidated in a plenary. The results are recorded by the teacher on moderation cards and compared with the results of the brainstorming. Similarities and differences will be named.



# WORKERS' REPORT... WORK ASSIGNMENTS

## GROUP 1: WORK ASSIGNMENT FOR THE TALKSHOW

In the text you were able to attain information regarding the topic of remuneration. You are now asked to present the topic in a talkshow as an expert in the on behalf of Yong. Answer the following questions within your group to prepare for the talk show, and briefly record their responses with keywords on a moderation card provided for this purpose.

Now, name a person from your group, which will participate in the talkshow and represent your position.

- What irritated you / appealed to you / surprised you while you read the text?
- What function is Yong performing at Foxconn?
- How does he describe his function?
- How much is his remuneration?
- How satisfied is Yong with his pay and why?
- What does he say about the wage increase for production workers?
- What factors should be observed for a fair wage increase in your opinion, and how should this be structured?

## GROUP 2: WORK ASSIGNMENT FOR THE TALKSHOW

In the text you were able to attain information regarding the topic of occupational safety and health. You are now asked to present the topic in a talkshow as an expert in the on behalf of Zheng. Answer the following questions within your group to prepare for the talk show, and briefly record their responses with keywords on a moderation card provided for this purpose.

Now, name a person from your group, which will participate in the talkshow and represent your position. The moderation card you filled will hereby serve as an aid.

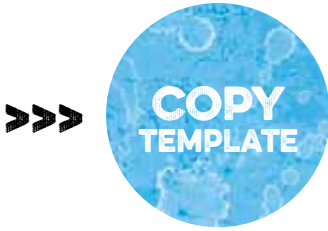
- What irritated you / appealed to you / surprised you while you read the text?
- What function is Zheng performing at Foxconn?
- How much is his remuneration?
- What was the reason for his accident? Who is to blame for it?
- How did the company respond to Zheng's work-related accident?
- How is the safety generally ensured in factories?
- Why are so few work-related accidents reported?
- What should be changed in your opinion so that the workers are treated fairly even after accidents?

## GROUP 3: WORK ASSIGNMENT FOR THE TALKSHOW

In the text you were able to attain information regarding the topic of leadership style. You will now be asked to present the topic in a talkshow as an expert on behalf of Li and Zhang. Answer the following questions within your group to prepare for the talk show, and briefly record their responses with keywords on a moderation card provided for this purpose.

Now, name a person from your group, which will participate in the talkshow and represent your position.

- What irritated you / appealed to you / surprised you while you read the text?
- What function are Li and Zhang performing at Foxconn?
- How do they describe the working atmosphere?
- With which means is the attempt made to attain better work results and why?
- How long do they work on average?
- How can the compliance with the prescribed working hours be ensured, according to your opinion?
- How could the work atmosphere within the factory be improved in your opinion?



# WORKERS' REPORT... WORK ASSIGNMENTS

## GROUP 4: WORK ASSIGNMENT FOR THE TALKSHOW

In the text you were able to attain information regarding the topic of resistance. You are now asked to present the topic in a talkshow as an expert in the on behalf of Yang. Answer the following questions within your group to prepare for the talk show, and briefly record their responses with keywords on a moderation card provided for this purpose.

Name a person from your group, which will participate in the talkshow and represent your position.

- What irritated you / appealed to you / surprised you while you read the text?
- How does Yang describe the working atmosphere in the factories?
- What is particularly exhausting for the workers?
- What forms of resistance does he describe?
- What triggers for the resistance are stated?
- How could the work situation for workers be improved in your opinion?

## MODERATION CARD MODERATOR

### Questions towards the group I remuneration:

- What happened to you?
- What was the reaction of the company?
- What is done to ensure the safety?
- How are work-related accidents mostly handled?
- What is attributable to this behaviour?
- What solution options are there to improve the situation for workers who had an accident?

### Questions towards the group II: Occupational safety and health:

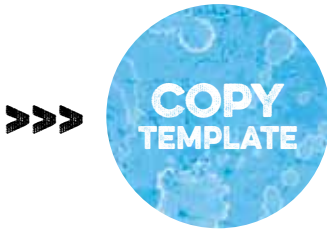
- How much salary do you receive?
- How satisfied are you with your pay?
- Why aren't you satisfied with your pay rise?
- What is the situation like for production workers?
- What factors must be considered to ensure a fair remuneration?

### Questions towards the group III leadership style:

- How you perceive the working atmosphere in the factories?
- What means are implemented to attain better work results?
- How long do you work on average?
- How can the compliance with the prescribed working hours be ensured?
- How can the working atmosphere be improved?

### Questions towards the group IV resistance:

- How you perceive the working atmosphere?
- How do workers resist?
- Why do workers strike?
- What should be improved so that resistance becomes useless?



## WORKERS' REPORT... TEXT GROUP 1: REMUNERATION

You will receive an excerpt from an interview with a worker employed in the cellular phone production. When reading the interview, particularly focus on the information regarding the topic of remuneration.

### YONG – FROM THE CONSTRUCTION SITE TO FOXCONN

- by Wang Wei and Dong Junyan

#### Up into the North, down to the South

Yong is from Zhoukou in the Henan province. He had carried out plastering and finishing work on construction sites in Beijing. [...] After several years of hard work on the construction sites, he decided to move to the South. He came to Shenzhen, and initially had to cope with a few problems. Then, he had found work at Foxconn and was already three or four years there. [...]

#### Working at Foxconn

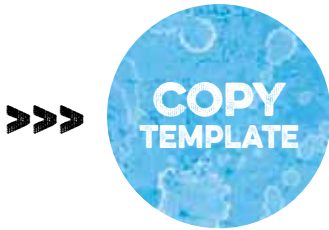
In the years of drudgery at Foxconn, Yong rose from a simple production worker to the line manager. The stress was an everyday occurrence. Unlike during his time as a production worker, as a line manager he was exposed to pressure from two directions: from above and from below. On the one hand, Yong felt the pressure of the strict pecking order. If something went wrong, the line managers could be fired: „To claim something as the own merit was hard, however, smaller or larger mishaps occurred quite easily.“ [...] As a line manager, he was not only under great pressure, the work was also hard and exhausting. Yong often had to work till after 9 p.m. The remuneration was anything but as

high. After the last wage increase, Yong received a basic salary of 2,200 Yuan<sup>135</sup>, but the prices had also risen. „Especially the rent was increased significantly. It has more than doubled, from 140 Yuan to over 300 Yuan! I spend two-thirds of my wage per month on: monthly rent, water and electricity charges are 400 to 500 Yuan; Cellular phone fees are 200 to 300 Yuan; A pair of trousers is 100 Yuan, shoes between 100 and 200 Yuan, and one complete wardrobe is 700 to 800 Yuan. That is far more than 1,000 Yuan. If I then go to eat with my friends, then every month I will have...“ He sighed. „Calculated like this, there won't be any money left over.“...

„What is the issue regarding the wage increase for the simple production workers?“, we asked further. Yong replied: „The basic wage of the simple production workers will now be raised to 2,000 Yuan, but he must first pass a performance evaluation. You will be evaluated again after three months. Someone who doesn't deliver the expected performance will be downgraded to 1,200 Yuan. Even if you pass the exam, your daily performance will also be observed. We line managers carry out the assessments.“

Source: The present excerpts are part of the Foxconn investigation project, see: Pun Ngai, Lu Huilin, Guo Yuhua, Shen Yuan (2012): *Wo Zai Fushikang (Me at Foxconn)*, Beijing. The German version was released in March 2013: *iSlaves - exploitation and resistance in China's Foxconn factories*; see <http://www.gongchao.org/de/islaves-buch>

<sup>135</sup> 1 Euro is equivalent to 8.50 Chinese Yuan (as of March 2014)



## WORKERS' REPORT... TEXT GROUP 2: OCCUPATIONAL SAFETY AND HEALTH

You will receive an excerpt from an interview with a worker employed in the cellular phone production. When reading the interview, particularly focus on the information regarding the topic of health and safety at work.

### ZHENG - UNBEARABLE PAIN

- by Li Changjiang

We visited Zheng one August afternoon, when the sun was still shining bright. He was lying on his sickbed. After the second operation he had just undergone, he still had to recover. The company had sent someone over to check on him, but they hadn't met before and therefore hardly spoke. During the course of the interview however Zheng was talkative and told his story about Foxconn. Zheng comes from Hunan and had begun to work for Foxconn three years earlier in the CMMSG corporate group. [...] At work, he assumed various planning and development tasks and serviced the machines. This sounds like the work of a technician, but he still didn't learn that much. The basic wage was a little over 1,000 Yuan <sup>136</sup>, and together with housing and food allowance and similar bonuses he managed to amount a bit more than 2,000 Yuan. He received no overtime allowance. [...]

When asked about his injuries, Zheng insisted that it was not his fault. When new machines came, neither an in-depth safety testing nor a user training were carried out. He stuck a hand into the machine to turn a screw, and „then a part in the machine moved crushed the hand.“ [...] After this incident the company once again checked the new machines, revised the regulations and trained the workers. They also did that under the pressure of the „Central Security Department“. „If the Central Security Department orders an investigation, then they will be in hurry to catch up with the security training.“ [...] The Central Security Department takes care of all security issues. If there is a work-related accident in a department, then go there and investigate it. They control the security issues of all Foxconn corporate groups. If you determine that there are

serious flaws in a department, the annual performance bonus payment of this department will be slashed or even cancelled. [...] If accidents are reported to superiors, the bonus payment of the department leadership may be significantly lower. The head of a division usually earns 30,000 to 40,000 Yuan as an annual bonus, a Director and his Deputy at least between 70,000 or 80,000 Yuan. If they are reprimanded as a result of work-related accidents, they will only receive about half of it. If this is taking into account, would you then rather pay the medical expenses for the treatment of a work related accident out of your own pocket. [...]

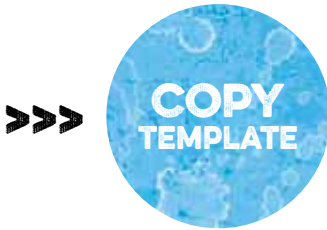
Zheng accident was however reported upwards and quickly recognised as a work accident. It took two weeks, which is considered extremely short. The written confirmation of the work related accident also came relatively soon. That everything happened so quickly, is according to Zheng, mainly attributable to the fact that he persistently insisted on it. „In this case you must insist yourself, in order for something to happen. I called there every day.“

[...] It is totally unacceptable that workers affected by a work-related accident at Foxconn, are also punished. Zheng was lucky because he only received a minor punishment. „I was not reprimanded but rather warned. If my case would've turned into a „big production“ it would have triggered disciplinary measures on three levels - for the line manager, the group leader and the head of the department. The line manager would have been „fired“ immediately, and the group and department heads would've lost their bonuses.“ Zheng has seen and heard of quite a few work-related accidents during his years at Foxconn. „At Foxconn, work-related accidents happen every day.“ But only a few are reported upwards, due to the above stated reasons. The bosses keep a lid on most of the work-related accidents.“

Source: The present excerpts are part of the Foxconn investigation project, see: Pun Ngai, Lu Huilin, Guo Yuhua, Shen Yuan (2012): *Wo Zai Fushikang (Me at Foxconn)*, Beijing. The German version was released in March 2013: *iSlaves - exploitation and resistance in China's Foxconn factories*; see <http://www.gongchao.org/de/slaves-buch>

<sup>136</sup>1 Euro is equivalent to 8.50 Chinese Yuan (as of March 2014)





## WORKERS' REPORT... TEXT GROUP 3: LEADERSHIP STYLE

You will receive an excerpt from an interview with workers employed in the cellular phone production. When reading the interview, particularly focus on the information regarding the topic of workplace atmosphere.

### LI & ZHANG – I WANT A REAL IPHONE 4

- by Han Yuchen and Ren Yan

We met Li and Zhang in a small shop for cellular phones and electrical appliances in the vicinity of the Foxconn complex in Shenzhen-GuanLan. By coincidence, they both wore the clothing of the company area, which manufactures Apple products. They were just playing around with a fake iPhone 4. We were curious and approached them. Actually, they were both involved in the manufacturing of the iPhone 4. By now, both of them were line managers. [...]

#### **A focus on the leadership style**

[...] Li said: „The leadership style should better not remain a secret. The public should know about it, because that would give us some protection. Those are absolutely paramilitary management methods. When we started here, we didn't know the rules yet. At home everything was carried out slowly and relaxed, here everything is regulated. One time, I stayed in the toilet for more than ten minutes and had to stand „at attention“ as a punishment when I came out, and my performance bonuses as well as my bonus were reduced. I will never forget that. (...) Let me give you an example: each Foxconn corporate group conducts a meeting every morning in the „command centre“, where a report about the previous day is presented. Once I substituted my supervising group leader. That was very enlightening. The meeting room actually resembled an operations centre. All of the previous day's production numbers were

displayed on a large screen. A red light flashed, where the requirements were not met. The superior- usually a Division Director or Director - points the infrared pointer to the production lines, which did not accomplish the targets. Then he pointed to the group leaders and line managers of the production lines and insulted them. If he had the opinion that the stated explanations were insufficient, you would be in a precarious situation. I witnessed the head of a department, a third-ranked senior executive rank, being insulted. The Director asked him: „How long have you been working here?“ He replied: „Ten years.“ The Director then said: „Damn it, you're wasting my money!“ I will give you two days. If it continues to light up red here, then you'll have to tell me how you intend to manage it. If it is still illuminated red after two days, you'll either leave voluntarily or I'll throw you out!“ The next day the production lines of the department head were still illuminated red, which prompted him to bring an entire carton of instant noodles into the office to make it clear that he does not intend to leave voluntarily. His subordinate executives all worked 18 hours at a time, and all the machine operators came back. Everyone assumed the cause of the problem would be lowest executives who didn't do a good job of running the production lines. In such situations over-times are not paid, however, everyone must still clock in at 8 a.m. in the morning and clock out at 8 p.m. in the evening to show that they start and stop working according to schedule. Group leaders and line managers treat the workers badly. One level puts pressure on the next etc., that's just the way it is.“ [...]

Source: The present excerpts are part of the Foxconn investigation project, see: Pun Ngai, Lu Huilin, Guo Yuhua, Shen Yuan (2012): *Wo Zai Fushikang (Me at Foxconn)*, Beijing. The German version was released in March 2013: *iSlaves - exploitation and resistance in China's Foxconn factories*; see <http://www.gongchao.org/de/islaves-buch>



## WORKERS' REPORT... TEXT GROUP 4: RESISTANCE

You will receive an excerpt from an interview with a worker employed in the cellular phone production. When reading the interview, particularly focus on the information regarding the topic of resistance.

### „THE MACHINE IS THE LORD AND MASTER“

by Yang – student and production worker at Foxconn in China

Production quotas and quality controls abuses the workers in the same manner as the use of verbal violence. This was most evident during the daily morning meetings. First, all the names were called. Then the line manager explained pending work items and talked about problems such as the lack of cleanliness at the workplace, clutter on the work benches, talking during work times and sloppy work. Every morning the first thing we had to listen to were reprehensions. [...] The superiors oppress the workers, the machines take away their sense for the meaning and value of life. The work there does not require any mental involvement. Every day same simple body movements are repeated so that the people will gradually become numb and apathetic. You are no longer in the here and now with your thoughts. I realized how I continued to have mental blackouts again and again during the work. I had already internalized all work movements, but I was suddenly startled and didn't know whether I had processed the previous work piece or not. Then, I had to ask my colleague to make sure. [...]

I often had the impression that the machine was the lord and master, whose hair I had to comb as a slave. I wasn't allowed to comb too fast, but also not too slow. I had to comb clean and tidy, no hair was allowed to break, whereby the comb was not allowed to fall down, and if I didn't do it properly I was reprimanded. [...]

One day a worker told me that in January of the same year, the over-time was not paid for, and that workers had therefore ceased to work. [...] Several people had taken the

initiative and denied overtime on that day. The other workers in the factory building participated immediately, and at the end of the normal shift a large part didn't work any over-time and left the building. Some of those who had seized the initiative at the time, later left the company or were transferred to other departments.

In the workshops, it could often be observed how workers looked for ways to relax. One day my colleague Ming came to me. We are good friends, but I was wondering why he had nothing to do during working hours. „The machine broke down“, he said. I replied: „This is excellent.“ He stayed for a while and whispered to me: „I have intentionally damaged the machine.“ I only have to actuate the emergency switch, and then the machine will stop. I moved the power switch back to the original position, so that no one could detect what happened.“ Another worker told me that at times when it's too busy or if he wants to have some quiet time, he treats correctly manufactured parts as non-compliant or destroys them, so he will have to manufacture them again. Thus, he can reduce the production quantity and reduce the working speed. He said: „My colleague from the night shift even threw away two boxes with standard OK parts.“ Of course there is also a simple and direct form of resistance, the voting using the feet: simply leave. Once I received a text message from a worker after the shift: „I resign!“ There is nothing wrong, except that I don't want any more of the nightly torture.“ He had only worked at Foxconn for 35 days.

Source: The present excerpts are part of the Foxconn investigation project, see: Pun Ngai, Lu Huilin, Guo Yuhua, Shen Yuan (2012): *Wo Zai Fushikang (Me at Foxconn)*, Beijing. The German version was released in March 2013: *iSlaves - exploitation and resistance in China's Foxconn factories*; see <http://www.gongchao.org/de/islaves-buch>  
1 Euro is equivalent to 8.50 Chinese Yuan (as of March 2014)

# >>> MY YEARS AT FOXCONN... INTERVIEW ANALYSIS ON THE WORKING CONDITIONS

The participants can name deficiencies in the production of cellular phones. You may compare the acquired knowledge to your own conception of an ideal workday.



Plenary, group work



45 Min.



Film, work assignments (copy template), laptop with Internet access, beamer, moderation cards, flipchart paper, pins, pens

The participants will formulate their concepts of an ideal work day within the scope of a brainstorming. You will receive information on the topic of working conditions in the cellular phone production based on an interview and will discuss the individual aspects in groups. The participants compare the newly acquired knowledge with their own conception of an ideal workday.

## **Preparation Brainstorming**

Following categories are recorded as headings on moderation cards:

- Working time
- Remuneration
- Occupational safety and health

Following questions are recorded on a flipchart paper:

- How long would you like to work on average per day?
- How high should your average remuneration be?
- How many days of vacation would you like to have in the year?
- How many hours of over-time are you willing work under which conditions?
- What is important to you regarding the subject of occupational safety and health?

## **Preparation Group work**

A laptop with Internet access, a beamer, as well as the film „My years at Foxconn“ will be provided. The film is available under [www.youtube.com/watch?v=vGaSXswQCMk](http://www.youtube.com/watch?v=vGaSXswQCMk), the English version is available under <http://en.labournet.tv/video/6587/those-were-my-years-foxconn>, The work assignments for the group work will be printed out (see copy template).

## **Implementation Brainstorming (8 Min.)**

The teacher will ask the participants the

questions written on the flipchart one at a time. The teacher records the results in writing on moderation cards, and assigns them to the categories of working hours, remuneration and labour protection.

## **Implementation Group work Interview (5 Min.)**

The participants will initially watch the film together and are then given the opportunity to ask comprehension questions.

### **Group work (5 Min.)**

The participants are divided into three groups:

- 1. Group: the topic of job description and wages
- 2. Group: the topic of occupational safety and health
- 3. Group: the topic of how the company handles work-related accidents

The group will receive the appropriate work assignment. Subsequently, the groups will watch the interview again on their cellular phones. After watching the interview, the groups will answer the questions of their work assignment together and record the results in writing on a flipchart.

### **Evaluation (7 Min.)**

The results of the group work are consolidated in a plenary. The teacher will record the results on moderation cards and compare them to the results of the brainstorming. The participants will state similarities and differences.

The created materials can then be hung up in the showcase „Production“ (see method „What’s App?!“).

### **Versions**

If the participants do not have a cellular phone available to view the film, the interview segment can also be shown again for a larger group.



# MY YEARS AT FOXCONN... WORK ASSIGNMENTS

## GROUP 1: ACTIVITY DESCRIPTION AND REMUNERATION

In the next 5 minutes, you will see an interview with a female worker formerly employed in the cellular phone production. When viewing the interview, particularly focus on the information regarding the activity and the remuneration. Then, briefly answer the following questions.

### Questions regarding the interview

- What irritated you / appealed to you / surprised you while you were viewing the interview?
- Where did Liu Xing work?
- How long did she work on average?
- What activity did she perform there? What did she manufacture?
- How high was her wage?

## GROUP 2: OCCUPATIONAL SAFETY AND HEALTH

In the next 5 minutes, you will see an interview with a female worker formerly employed in the cellular phone production. When viewing the interview, particularly focus on the information regarding the topic of health and safety at work. Then, briefly answer the following questions.

### Questions regarding the interview

- What irritated you / appealed to you / surprised you while you were viewing the interview?
- How much percent of the sales price of the iPhone did Liu Xing earn?
- What dangers does she describe?
- How does she describe the safety precautions in the factory?
- What reasons for the condition of the safety measures does she state?

## GROUP 3: HOW THE COMPANY HANDLES WORK-RELATED ACCIDENTS

In the next 5 minutes, you will see an interview with a female worker formerly employed in the cellular phone production. When viewing the interview, particularly focus on the information regarding the topic of health and safety at work. Then, briefly answer the following questions.

### Questions regarding the interview

- What irritated you / appealed to you / surprised you while you were viewing the interview?
- How does Liu Xing describe the manner in which the company handles work-related accidents?
- What consequences for the workers are shown?
- What causes are stated for this approach?
- What does Liu Xing wish for?

# >>> THERE IS STILL MUCH TO BE DONE! INTERVIEW ANALYSIS AND DISCUSSION OF ALTERNATIVE COURSES OF ACTION

The participants may designate, why it is so difficult to enforce minimum standards for working conditions in the cellular phone production. You know what influence options the different stakeholders have, and you are aware of your own position as a consumer.



Individual work, group work, plenary



45 Min.



Interview, work assignments (copy template), flipchart paper, pens

The participants read / watch an interview and discuss the different stakeholder perspectives in the form of group work. The results will be presented in the plenary.

## **Preparation**

The interview will be printed out for all participants (see copy template).  
The work assignments for the group work will be printed out (see copy template).

## **Implementation**

### **Interview (10 Min.)**

The participants will receive the interview and read it individually. Then the participants will be divided into three groups.

### **Group Work (25 Min.)**

- 1. Group: Perspective of the workers
- 2. Group: Perspective of the suppliers
- 3. Group: Perspective of the cellular phone manufacturers

The group will receive the appropriate work assignment. Please read the interview again with regard to the perspective of the individual actors. You will answer the questions and record them in writing.

## **Evaluation (10 Min.)**

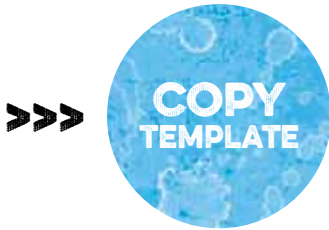
The groups present their findings in a plenary. Together, the production chain will be traced and the responsibilities for severe deficiencies in the working conditions addressed. The participants will become aware of the fact of how much power the consumers have within this framework. The evaluation may focus on the following questions:

- Why do workers work for low wages and work over-time?
- Why is so difficult for suppliers to enforce minimum standards?
- Why are manufacturers now responding to deficiencies?
- What influence do consumers have?
- How can consumers apply pressure on their manufacturer?

The created materials can then be hung up in the showcase „Production“ (see method „What’s App?!“).

## **Versions**

For the German-speaking countries a video recording can also be used as a substitute for the written interview. The film can be called-up under the following link: [www.zdf.de/ZDFmediathek/beitrag/video/1910080/#/beitrag/video/1910080/Da-ist-noch-viel-zu-tun](http://www.zdf.de/ZDFmediathek/beitrag/video/1910080/#/beitrag/video/1910080/Da-ist-noch-viel-zu-tun)



# THERE IS STILL MUCH TO BE DONE! WORK ASSIGNMENTS

## GROUP 1: WORKERS

Please read the interview with Cornelia Heydenreich from Germanwatch again. This time, especially pay attention to the statements pertaining to the workers. Then, briefly answer the following questions.

### Questions regarding the interview

- What irritated you / appealed to you / surprised you while you were reading / viewing the interview?
- What reasons are stated for working over-time?
- What additional reasons can you think of?
- And what form do the suppliers exert pressure as an employer?
- What would have to change according to your opinion to improve the situation for the workers?

## GROUP 2: SUPPLIERS

Please read the interview with Cornelia Heydenreich from Germanwatch again. This time, especially pay attention to the statements pertaining to the suppliers of the cellular phone manufacturers. Then, briefly answer the following questions.

### Questions regarding the interview

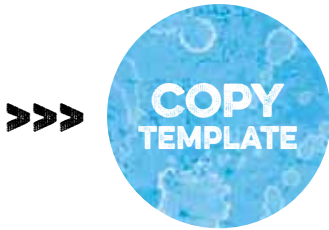
- What irritated you / appealed to you / surprised you while you were reading / viewing the interview?
- Which difficulties in the enforcement of national labour standards, for example, the 40 hour workweek in China are mentioned?
- What causes were stated regarding the difficulty in the enforcement of these labour standards?
- What additional reasons can you think of, why labour standards are not respected?
- What would have to change according to your opinion so that the suppliers are able to comply with the work standards?

## GROUP 3: CELLULAR PHONE MANUFACTURERS

Please read the interview with Cornelia Heydenreich from Germanwatch again. This time, especially pay attention to the statements pertaining to the cellular phone manufacturers. Then, briefly answer the following questions.

### Questions regarding the interview

- What irritated you / appealed to you / surprised you while you were reading / viewing the interview?
- What do you find out about the commitment of Apple to counteract the deficiencies?
- What reasons are stated for this engagement?
- What additional reasons come to mind, to become active against the violation of labour standards?
- What influence do consumers have of ensuring that labour standards are respected?



## THERE IS STILL MUCH TO BE DONE! INTERVIEW

### „THERE IS STILL MUCH TO BE DONE!“ FRONTAL 21 INTERVIEW WITH CORNELIA HEYDENREICH FROM GERMANWATCH

**Interviewer:**

Many people don't have any idea under what conditions the iPhones, iPads and all the other products are manufactured. How should I imagine that? Who manufactures these products and what does this mean for them?

**Cornelia H.:**

People from the rural areas come to the cities, to work there because they do not earn enough in rural regions and don't just have to support themselves but also their families, which makes them dependent on a certain wage level. On the other hand, the minimum wage in China is insufficient for people to feed themselves solely on that basis, which more or less forces them to work long hours, whereas the companies often state that the workers want to work overtime. But this is not necessarily due to the fact that they desire to work so much, but rather because they simply cannot survive with what they would earn for a normal working day.

**Interviewer:**

How many hours do the workers of the Apple suppliers work?

**Cornelia H.:**

The workers work much too long, often ten to twelve hours per day, and sometimes even longer. A study by our partners from China has recently shown us that fourteen hours per day were normal at a company during peak times. This eventually translates to 70 to 100 hours a week, and within a timeframe of three months the workers were only allowed to take one or two days off.

**Interviewer:**

Apple has commissioned the Fair Labour Association that also performed test after test and now promises that at least at Foxconn the Chinese labour law will be complied with by July 1, 2013, at least regarding the work times. This means 40 hours per week, with a maximum of 36 overtime hours per month - do you really think that this is going to happen?

**Cornelia H.:**

This is bound to be highly difficult, since our experience thus far suggests that over-times are a huge problem, particularly during peak times before Christmas where the production pressure is very high - which also makes me very

curious as to how Apple and respectively the suppliers will manage a compliance with that.

**Interviewer:**

Thus, on July 1, 2013 the Chinese labour laws will probably remain unobserved at Foxconn?

**Cornelia H.:**

I still can't believe it.

**Interviewer:**

Why is that so difficult?

**Cornelia H.:**

Our impression is that this is mainly attributable to the purchasing practices of the companies: that they demand very short delivery terms, that they require very short-term high-volume production goals and receipt of their products at a certain deadline - and if that is not attainable, to increase the pressure even more and prescribe over-time for the suppliers in order to reach the production goals.

**Interviewer:**

Is that a real commitment what Apple is demonstrating or is it window dressing?

**Cornelia H.:**

I think that by now Apple is actually trying to enforce the improvements. Another question is whether they are sufficient. But I think Apple has been put under pressure long enough and must now finally do something about it. Well, there were just so many scandals in recent years. And on the other hand Apple can absolutely afford this financially, so if a company can do this, then it's Apple. And Apple postulates: we are so great and don't just make great products, but the production is also fantastic. But to really be able to prove this in a sound manner, there is still quite a bit that needs to be done according to my opinion. I don't have the impression that Apple actually regards human rights and workers' rights with a top priority in their corporate policy, since the key priority is to generate the profits which are reflected by the quarterly figures, and also by the way the company is perceived. By now they can no longer afford to completely ignore human rights and the rights of workers, whereas from our point of view this did not derive from the conviction of the company, but rather from the public pressure. And this is precisely where the company can do a lot more, to actually also be a champion in this regard.

# >>> CONSUMPTION AND USE

## General information on the subject of consumption and use

Today, more than 4 billion people worldwide use cellular phones.<sup>83</sup> In just seven years, the share of cellular phone owners in the EU increased from 692 million in 2005 to over one billion in 2012.<sup>84</sup> In the EU average, 96% of the 16-24 year olds already used a cellular phone in 2009. According to the statistics there aren't any young people anymore in Finland who weren't using a cellular phone. In Germany, percentage of users was 97%. Even in Romania, the EU country with the lowest penetration, 83% of the young people were already using cellular phones.<sup>85</sup>

Heutzutage lösen Smartphones europaweit die herkömmlichen. Nowadays smartphones are replacing conventional cellular phones throughout Europe. Thus, smartphones accounted more than half of the used cellular phones in December 2012 for the first time in all EU countries. This resulted in significant regional differences: while 64% of all cellular phones used in the UK are already smartphones, the computer phones in Germany so far only have a share of 51%. However, more than three-quarters of all newly purchased mobile devices are now smartphones.<sup>86</sup> In 2011 the proportion of users had already increased to 40%.<sup>87</sup> For 2012, it was expected that more smartphones would be sold than regular cellular phones for the first time.<sup>88</sup>

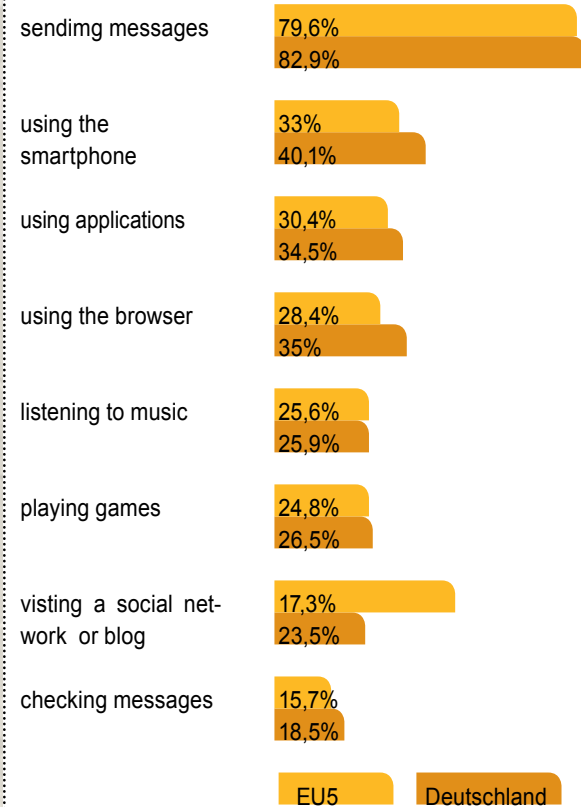
## The importance of cellular phones

Today, the cellular phone has a high priority among many young people. In particular, the brand of the manufacturer plays an increasingly important role. For example, 37% of the young people in the EU indicated that the popularity degree of the manufacturer is important to them.<sup>89</sup> Under certain circumstances, the cellular phone brand can even become a reason for mobbing and lead to the exclusion of groups.

## The use of cellular phones

Through their versatile usability, smartphones are actually small portable computers. They have given a new meaning to the term communication and have significantly impacted the social life of many people.<sup>90</sup> Multifunctional cellular phones have become an essential part of life for many young people.<sup>91</sup> The majority of young people in the EU mainly use the cellular phone to send text messages. Additionally, the functionality of a smartphone is also often used to access social networks through the internet. The phone is also frequently used to play music and games.

## the usage of the functions of a cellular phone in Germany und Europe



## At the level of the consumers

### Sustainable cellular phone usage

The consumption of products isn't just increasingly influencing the economic and social situation of the people, but also the state of the environment. There is a significant potential for the reduction of environmental implications, particularly in the area of the consumption behaviour and the manufacturing of products.<sup>92</sup> A sustainable consumer behaviour is part of a sustainable way of life, which includes the consideration of environmental and social aspects when purchasing and using products, as well as the criteria regarding the disposal of resources in everyday life.<sup>93</sup> A sustainable consumption behaviour can affect all stages of the value creation chain and should be considered for the entire life cycle of a product.<sup>94</sup> Clearly stated guidelines for a sustainable consumption behaviour in everyday life were developed for English-speaking countries: the so-called „R-rules“:<sup>95</sup>

- Rethink: consider whether you can even give up a few consumer goods!

<sup>83</sup>comp. Germanwatch 2012, p.5

<sup>84</sup>comp. Statista o.J.

<sup>85</sup>comp. Statista o.J.

<sup>86</sup>comp. Techfieber o.J.

<sup>87</sup>comp. BMBF 2012, p.34

<sup>88</sup>comp. BMBF 2012, p.34

<sup>89</sup>comp. Statista o.J.

<sup>90</sup>comp. BMBF 2012a, p. 4

<sup>91</sup>comp. BMBF 2012b, p. 1

<sup>92</sup>comp. BMUB 2013

<sup>93</sup>comp. BMUB 2013

<sup>94</sup>comp. BMUB 2013

<sup>95</sup>comp. BMBF 2012, p. 39

<sup>96</sup>comp. BMBF 2012, p. 38



- Reduce: when purchasing consumer goods, observe that their consumption is low and that they are manufactured in a fair manner!
- Repair: maintain and repair consumer in such a manner, that they will serve you for as long as possible!
- Refuse: refuse to always purchase consumer goods right away: loan, swap, share!
- Re-use: utilize consumer goods as long as possible or use them until they are exhausted!
- Recycle: avoid waste and throwing things away - pass consumer goods on to others or recycling them!

These rules can also be conveyed to the usage of cellular phones. On average, a cellular phone is only used for 18 to 24 months, although most devices will function much longer.<sup>96</sup> By extending the usage phase it is possible to conserve resources and protect the environment. There are several ways to extend the life cycle of a cellular phone, which also includes the careful handling of a mobile device. A cover protects the phone from scratches, moisture and shocks. The proper charging of the battery also extends the life expectancy.<sup>97</sup> A switched-on cellular phone consumes energy even if it's in stand-by mode. Therefore it is highly beneficial to switch the cellular phone off or into the flight-mode at night. The life cycle can also be extended by repairing defects.

### Purchase a Fairphone

Fairphone is the name of a social enterprise based in the Netherlands, which aims to make the value chain of products transparent and understandable, and to establish a connection between people and products they own.<sup>98</sup> The company has therefore developed the eponymous Fairphone, a Smartphone which doesn't primarily focused on the technical innovations of the device, but rather on the social and environmental impact during the production process.<sup>99</sup> The fair produced Smartphone was designed with the aim of pointing out the deficiencies in the supply chain of cellular phone and identifying solutions for these problems. Through the creation of an alternative in the smartphone market, the company wants to raise the bar for the entire industry.<sup>100</sup> The Fairphone is produced without exploitation of persons, and with a low impact on the environment. Following aspects be taken into account in the manufacturing process:

- Extended service life of the device and simplification of the repair options
- Use of raw materials from conflict-free areas such as Tin and Coltan from certified mines
- Fair production conditions through a collaboration with Chinese suppliers

In the public debate various aspects of the Fairphone are subjected to criticism. The following is argued:

- No concrete definition, what the company defines as fair working conditions

- Use of this term „conflict-free“ raw materials does not mean that the raw materials are mined under fair working conditions
- Misleading the consumers with the name Fairphone, because the Smartphone cannot be manufactured 100% fair

Even the Dutch social enterprise admits that it is impossible to develop and manufacture an absolutely fair Smartphone, since the production chain is highly complex.<sup>101</sup> Trotz dieser Einwände wird darauf hingewiesen, dass das Fairphone einen wichtigen Schritt darstellt, um auf die Missstände in der Wertschöpfungskette von Handys hinzuweisen.

Despite these objections, it is pointed out that the Fairphone represents an important step towards sufficiently elaborating the deficiencies within the value creation chain of cellular phones.

## SOURCES USED

- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012: „Die Rohstoff-Expedition“ (The Raw-Material Expedition). Discover what's inside of your/a cellular phone! Learning and working material.
- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012a: Factsheet 8. The cellular phone in the everyday life of young people.
- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012b: Factsheet 9. Sustainable use of cellular phones.
- Germanwatch 2012: Still no fair cellular phones. Follow-up study on the corporate responsibility of German cellular network operators.

### Internet

- BMUB 2013: <http://www.bmub.bund.de/themen/wirtschaftsprodukte-ressourcen/produkte-und-umwelt/produktbereiche/nachhaltiger-konsum/> (last accessed on 02/15/2015)
- Fairphone 2013: <http://www.fairphone.com/> (last accessed on 02/15/2015)
- Statista: <http://de.statista.com/> (last accessed on 02/15/2015)
- Süddeutsche Zeitung digital 2013: <http://www.sueddeutsche.de/digital/gerechtes-smartphone-das-kann-das-fairphone-1.1690428> (last accessed on 02/15/2015)
- Techfieber: <http://www.techfieber.de/> (last accessed on 02/15/2015)
- Techfieber o.J.: <http://www.techfieber.de/> (zuletzt abgerufen 15.02.2015)

<sup>97</sup>comp. BMBF 2012, p. 40

<sup>98</sup>comp. Fairphone 2013

<sup>99</sup>comp. Fairphone 2013

<sup>100</sup>comp. Fairphone 2013

<sup>101</sup>comp. Süddeutsche Zeitung digital 2013

# >>> MY CELLULAR PHONE AND I STATION COURSE REGARDING THE TOPIC OF CELLULAR PHONE USAGE AND CONSUMPTION

Participants can express views regarding their individual cellular phone consumption and usage behaviour.

The participating will travel to individual stations that focus on the topics of consumption and cellular phone usage. Through this, they will depict their consumption behaviour, recognize the role of their cellular phone in everyday life, and become aware of the extent of their own cellular phone usage.

## Preparation

The posters for the individual stations will be created, and the required materials will be provided (see the description of the individual station).

To facilitate the preparation and evaluation, the participants can allocate themselves to the individual stations as a „sponsor“ and prepare them prior to the start of the station course, and evaluate them at the end.

## Implementation/ Station Course (depending on the number of stations, each station ca. 5-10 Min.)

Participants will individually travel to each of the stations distributed throughout the room. They will determine the sequence of their work steps and the time spent at the individual learning stations by themselves.

Individual work, plenary

45 Min.

See Description of the individual stations

## Evaluation (5 Min. per station)

After the station course has been completed, the individual stations will be evaluated together. The results or respectively the group pictures of the stations are either presented by the teacher or the competent „sponsor“ within the scope of a walkabout, or directly in the form of a brief oral summary. The evaluation of the stations may focus on the following key questions:

- How many of the participants have worked on the station?
- What is particularly striking in the results?
- What are the most important statements of the quiet discussion?
- What are the most surprising statements of the quiet discussion?

The created materials can then be hung up in the showcase „Consumption / use“ (see method „What's App?!“).

## Tips for the teacher

It should be ensured that participants do not linger too long at each station, so they will have enough time to pass through all the stations. To ensure this, it is advisable to sound an acoustic signal or similar signal after half the time has lapsed, to point out the remaining time.

If it becomes foreseeable that a group will work longer than 5 minutes at a station, it is advisable to only set up 3 stations.

# >>> STATION „ONE AIN'T NOTHING!“

The participants can express views regarding their individual cellular phone consumption. The participants can state on a poster, how many phones they have already owned, currently have and how many of them are in use.



Individual work



approx. 5 Min.



Posters, 3 stamps, stamp pads

For the alternative: 4 transparent vessels, marbles and place cards

## Preparation

Three posters will be created, where each depicts a vessel and one of the following questions (see sketch of the station „One ain't nothing!“):

- How many cellular phone have you already owned?
- How many cellular phones are you currently using?
- How many cellular phones are unused at home with you?

The posters will be hung up prominently in the room. Stamps and stamp pads will be positioned in front of the posters.

The work assignment will be written onto the poster (see sketch of the poster).

A poster with the phrase „I'm getting a new cellular phone, when...“ will be prepared for the quiet discussion.

## Implementation

The participants will answer the questions in the

prescribed order by visualizing the respective number with stamps.

Subsequently, the participants will take part in a silent discussion, by completing the prescribed sentence „I will acquire a new cellular phone, when...“ on a flipchart paper.

## Evaluation

The evaluation will be performed at the end of the station course by the competent „sponsor“ or the teacher. For a more in-depth explanation refer to the method description of the station course.

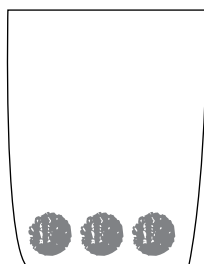
## Versions

Instead of using the stamps, the individual questions can also be answered with marbles. For the preparation, four transparent vessels will be set up and the matching questions on the place cards positioned prominently. Marbles are positioned in front of the respective vessels. The participants will answer the questions in the

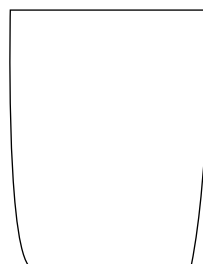
Sketch

**Please answer the three questions by placing a stamp for every cellular phone onto the appropriate poster!**

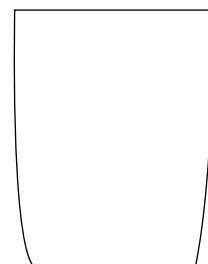
How many cellular phone have you already owned?



How many cellular phones are you currently using?



How many cellular phones are unused at home with you?



# >>> STATION „CHATTING, SURFING, TEXTING“

Participants can explain for what they use their cellular phone in everyday life. The participants will position themselves towards statements about cellular phone usage options.

 Individual work

 approx. 5 Min.

 posters, pens  
For the alternative: 10 adhesive strips per participant

## Preparation

A large poster with the following statements on the subject of cellular phone usage will be created:

- I use my cellular phone to...
- make calls
- send text messages
- chat
- play games
- wake me up
- listen to music
- organize appointments
- surf on the internet
- do other things...

A cellular phone battery is shown behind the respective statements with separate fields (see sketch station „Chatting, surfing, texting“).

The work assignment will be written onto the poster (see sketch of the poster).

A poster with the phrase „I would never use my cellular phone to...“ will be prepared for the quiet discussion.

## Implementation

The participants will now apply paint to the fields behind the individual statements, and thus represent how important the individual usage options are to them. Hereby, more than one box can be allocated to a statement. A total of ten boxes may

be painted. Under „other“ the participants can add further usage options.

Subsequently, the participants will take part in a silent discussion, by completing the prescribed sentence „I would never use my cellular phone to...“ on a flipchart paper.

## Evaluation

The evaluation will be performed at the end of the station course by the competent „sponsor“ or the teacher. For a more in-depth explanation refer to the method description of the station course.

## Versions

Instead of having the individual fields coloured by the participants, the visualization can also be performed by using adhesive strips. The participants will then show their position using ten adhesive strips pertaining to the respective statements. Here again, several strips can be allocated to the individual statements.

## Tips for the teacher

Is adhesive tape is used, it is important to make sure that the adhesive strips are glued side by side to create different-sized bars that can be compared with each other.

Sketch

**What do you use your cellular phone for? You may paint out 10 different fields!**

**I use my cellular phone to..... make calls etc.**

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

# >>> STATION „CELLULAR PHONE, COMPUTER AND CO“

The participants may specify how important the cellular phone is to them in contrast to other electronic consumer products. The participants will determine the significance of different consumer goods using visual symbols.

## Preparation

A poster with a podium will be created (see sketch station „Cellular phone, computer and co.“). The copy template with the symbols will be printed out according to the number of participants and placed next to the poster.

The following symbols can be associated:

- Cellular phone
- PlayStation
- MP3 Player
- Television
- Radio
- Computer

The work assignment will be written onto the poster (see sketch of the poster). A poster with the phrase „A day without my cellular phone for me would be like ...“ will be prepared for the quiet discussion.

## Implementation

Participants will select three of the consumer

 Individual work

 approx. 5 Min.

 Symbols (copy template), posters, scissors, pins or glue

goods shown on the template, cut them out and then pin them on the corresponding place on the podium according to their significance.

Subsequently, the participants will take part in a silent discussion, by completing the prescribed sentence „A day without a cellular phone for me would be like...“ on a flipchart paper.

## Evaluation

The evaluation will be performed at the end of the station course by the competent „sponsor“ or the teacher. For a more in-depth explanation refer to the method description of the station course.

## Versions

Instead of a podium on which all participants position themselves, a podium can also be created individually for every participant.

Sketch

**Which three devices are most important for you?**

**Please cut out the appropriate devices and glue them on the 1st, 2nd and 3rd place of the winners podium.**

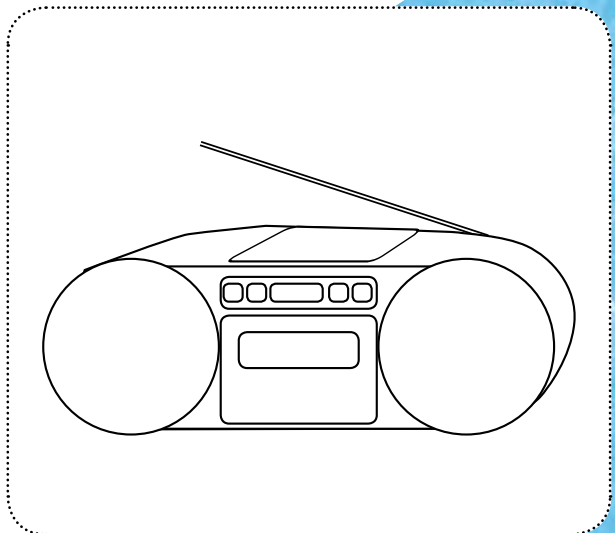
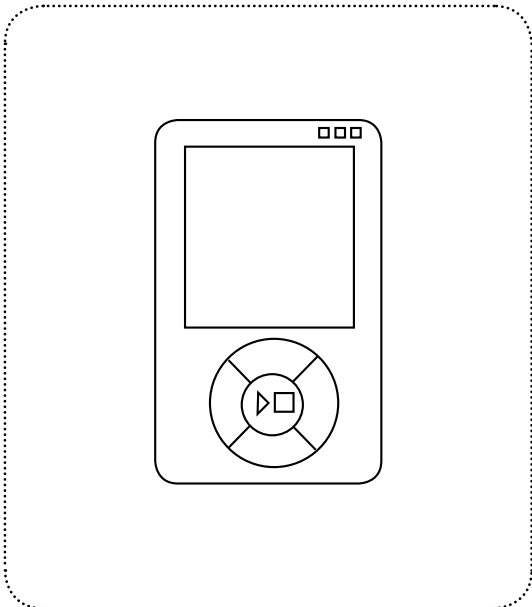
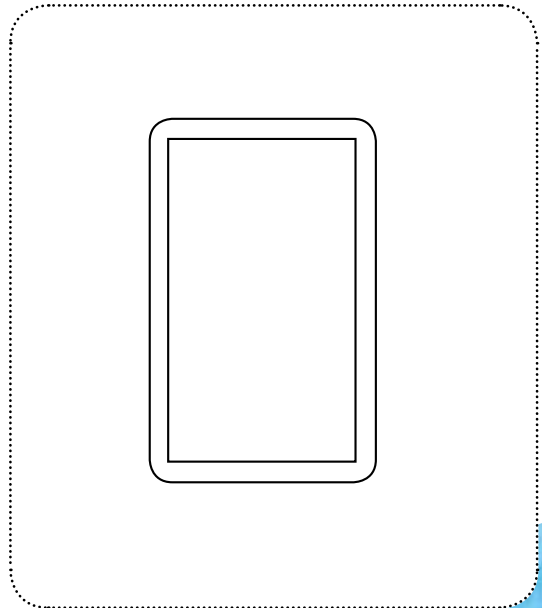
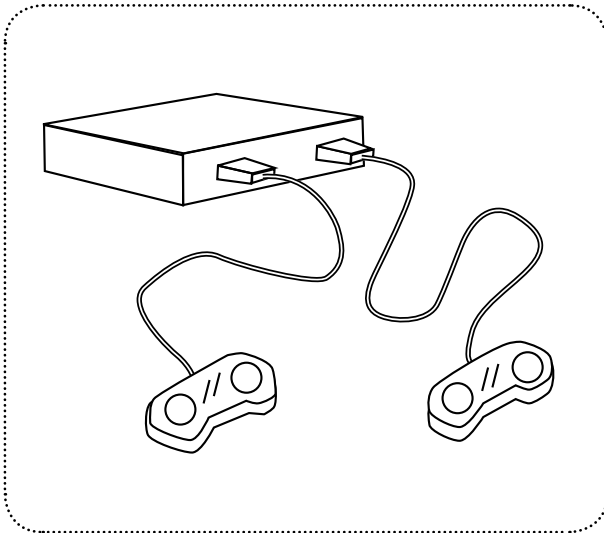
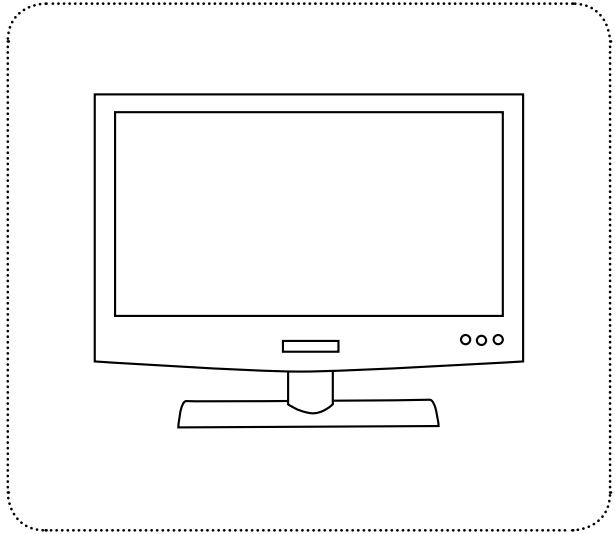
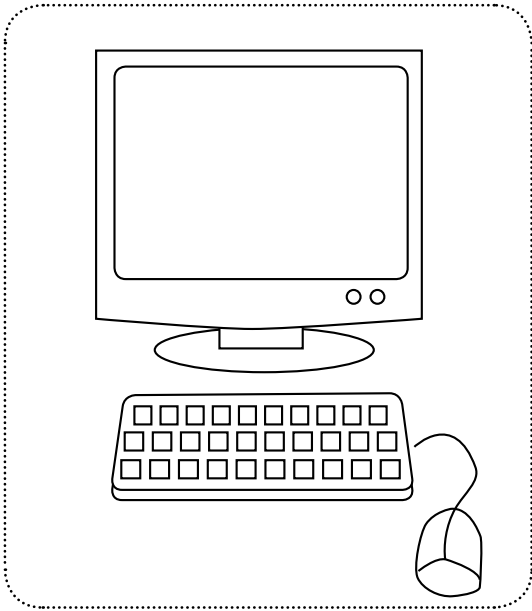
**1. PLACE**

**2. PLACE**

**3. PLACE**



# CELLULAR PHONE, COMPUTER AND CO: SYMBOLS



# >>> STATION „NEW TERRITORY“

Participants can explain since when they have been using cellular phones, and for how long they have been in possession of their own cellular phone. The participants will position themselves on a timeline regarding questions from this topical area.

 Individual work

 approx. 5 Min.

 posters, adhesive points or pens

## Preparation

Two posters will be created, each with a timeline as well as one of the following questions (see sketch of the station „New territory“):

- „How old were you, when you used a cellular phone for the first time?“
- „How old were you, when you received/purchased your first cellular phone?“

The work assignment will be written onto the poster (see sketch of the poster).

A poster with the phrase „Everyone should have their own cellular phone as soon as ...“ will be prepared for the quiet discussion.

Subsequently, the participants will take part in a silent discussion, by completing the prescribed sentence „Everyone should have their own cellular phone as soon as...“ on a flipchart paper.

## Evaluation

The evaluation will be performed at the end of the station course by the competent „sponsor“ or the teacher. For a more in-depth explanation refer to the method description of the station course.

## Versions

It is also possible to only create a single poster which contains both timelines.

## Implementation

The participants will position themselves on the two timelines with adhesive points or crosses.

Sketch

**Please answer the two questions by drawing up a cross at the appropriate place on each timeline!**

**„How old were you, when you used a cellular phone for the first time?“**

5 6 7 8 9 10 11. . . in annual steps until today



**„How old were you, when you received/purchased your first cellular phone?“**

5 6 7 8 9 10 11. . . in annual steps until today



# >>> IN SEARCH OF THE FAIRPHONE

## AN INTERNET SEARCH FOR THE FAIRPHONE

The participants may define the term „fair“. They know the concept of the Fairphone and can name pros and cons. The participants will become familiarized with the meaning of the term „fair“ through the exercise of „Conversing while walking“. Within the scope of the research work they will critically examine the concept of the Fairphone and learn about pros and cons.

### **Preparation „Conversing while walking“**

The route cards will be printed out for all participants (see copy template). The signal is provided.

### **Preparation Research on the Fairphone**

The worksheets for the group work will be printed out (see copy template).

Computers with Internet access are provided if the participants are unable to perform the research using the smartphone.

### **Implementation „Conversing while walking“ (15 Min.)**

The teacher will explain the method. Every participant will then receive a route card, read through the statements and think about them individually, while he/she slowly moves around within the room.

If an acoustic signal sounds, every participant will turn towards a neighbouring person. He / she will ask a question or start a short conversation about his or her thoughts regarding one of the statements.

An acoustic signal will sound again after approx. 1 minute. The participants will end their talks and continue to walk about the room.

After the group has quieted down and relaxed, the next conversation phase will be initiated by an acoustic signal. New pairs will form and exchange thoughts. This process will be continued until approx. 10 minutes have elapsed.


After the last course cycle, the participants will gather and express their thoughts, conversation contents and findings. The teacher will summarize the results and transition to the Fairphone.

### **Implementation Research on the Fairphone (20 Min.)**

The participants will be divided into groups of

 Individual work, group work, plenary

 45 Min.

 Route card, work assignments (copy templates), signal (for example music, horn, gong), computer or cellular phones with Internet access

two, and will each receive a work assignment. The participants will conduct a research on the Fairphone using a computer or their own cellular phone, and answer the following questions in writing:

- What is the idea behind the Fairphone?
- What distinguishes the Fairphone from traditional smartphones?
- What are the special characteristics of the Fairphone?
- What are possible disadvantages of the Fairphone?

### **Evaluation (10 Min.)**

The groups will briefly present their findings in the plenary. The teacher will write these down on a flipchart. Subsequently, the participants will discuss the advantages and disadvantages of the Fairphone. The discussion may orient itself along the following questions:

- What advantages does the Fairphone offer?
- What are the disadvantages of the Fairphone?
- Can you imagine, purchasing the Fairphone?
- The created materials can then be hung up in the showcase „Consumption / use“ (see method „What’s App?!“).

### **Tips for the teacher**

Because the search links provided on the worksheet can only be used in the German-speaking countries, it is advisable to research relevant links for other source languages and to provide them accordingly before attempting to implement the method.

In case of an odd number of participants, the teacher should participate in the „Conversing while walking“.

The Fairphone should not be portrayed as the solution for a sustainable cellular phone usage, but merely demonstrate the approach of the concept and present it as a possible alternative.





# IN SEARCH OF THE FAIRPHONE

## ROUTE CARD „CONVERSING WHILE WALKING“

- What does fair mean? What is fair in your opinion and what is not?
- In what context is the term fair frequently used?
- What do you know about fair trade?
- What could be the intention of a Fairphone concept?

## WORK ASSIGNMENT FOR THE GROUP WORK

Search the Internet for information about the „Fairphone“, and thereby answer following questions by stating a few key points:

### 1. What is the idea behind the Fairphone?

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### 2. What distinguishes the Fairphone from other smartphones?

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### 3. What are the special characteristics of the Fairphone?

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### 4. What are possible disadvantages of the Fairphone?

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Links for the search in the German-speaking countries  
Following sites on the Internet can help you:

- [www.fairphone.com](http://www.fairphone.com)
- [www.zeit.de/digital/mobil/2014-01/fairphone-test-benchmark](http://www.zeit.de/digital/mobil/2014-01/fairphone-test-benchmark)
- [www.chip.de/artikel/Fairphone-First\\_Edition-Handy-Test\\_66590254.html](http://www.chip.de/artikel/Fairphone-First_Edition-Handy-Test_66590254.html)
- [www.computerbild.de/artikel/cb-Tests-Handy-Fairphone-8432542.html](http://www.computerbild.de/artikel/cb-Tests-Handy-Fairphone-8432542.html)

# >>> HOW DO I CONSUME? DEVELOPMENT OF GUIDELINES FOR A SUSTAINABLE CELLULAR PHONE USAGE

The participants are aware of the guidelines for a sustainable consumption according to the „R-rules“ and are able to convey these to the cellular phone usage area.

The participants will learn the guidelines for a sustainable consumption within the scope of the teamwork. They will apply these to the cellular phone usage area by formulating concrete proposals. They will evaluate the proposals with regard to their feasibility and individually decide upon a version.

## Preparation

The guidelines for a sustained consumption will be printed out (see copy template).

The following template for the table will be written onto four posters:

The starting point for the sustainable cellular phone usage	What can I specifically do to structure the use of my cellular phone more sustainably?
---	--

The posters will be hung up prominently in the room.

## Implementation/ Design of posters (20 Min.)


The participants will receive the guidelines for a sustainable consumption (R-rules) and will read them individually. Subsequently they will walk about the room and write their proposals, on how the R-rules can be applied for the cellular phone usage, onto posters. Thereby, they will exchange their views with other participants.

Following table shows possible examples, which shouldn't be prescribed for the participants.

The starting point for the sustainable cellular phone usage	What can I specifically do to structure the use of my cellular phone more sustainably?
Usage duration	Switch off the cellular phone at night or activate the airplane mode
Usage duration	Use the cellular phone until it is no longer functional
Repair	Repair the cellular phone, for example, if the screen glass shatters

 Individual work, group work, plenary

 45 Min.

 R-rules (copy template), flipchart, pens, points (green, yellow, red) and possibly material for the material for note papers

## Evaluation

### Presentation (5 Min.)

The participants will consolidate their results in the plenary. The teacher will write down the most common answers on an additional poster.

### Assessment of feasibility (10 Min.)

The participants will evaluate the proposals with regard to their feasibility and practicality. For this, they will each receive a sticker with the meanings: green (=can be implemented well), yellow (= can be implemented under circumstances) and red (=can only be implemented with great difficulty). You will select three of the proposals and attach your sticker behind it. In a subsequent discussion, the participants will decide which ideas they would like to implement in their daily lives.

### Reminder to oneself (10 Min.)

And to remind them of their selected action, the participants will store a reminder in their cellular phone, which will remind them of their intent in three weeks. Participants without a cellular phone will write themselves a note, which will be headed out to them by the teacher in three weeks.

The created materials can then be hung up in the showcase „Consumption / use“ (see method „What's App?!“) as the concluding task.

## Versions

As an alternative to the reminder for themselves, the participants can also write themselves a postcard. The teacher will send the postcards cards home to the participants 3 to 4 weeks after the project day.

## Tips for the teacher

During the collection of proposals for the transfer of the guidelines regarding the sustainable cellular phone usage, the participants shouldn't carry a feasibility assessment yet, but rather collect several possible ideas for a sustainable cellular phone usage.

## Possibilities for further work

After the participants have gained their knowledge, they can be asked if they want to report about his / her own experiences.



# HOW DO I CONSUME? : R-RULES

## Work assignment for the text work

Read the guidelines for a sustainable consumption (R-rules)!

## Work assignment for the group work

Consider the common starting points, on how the guidelines can be applied to the sustainable cellular phone usage. Transfer the ideas to the appropriate posters.

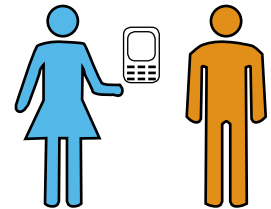
### RETHINK

Rethink whether you cannot **abdicate** a lot of things.



### REFUSE

Refuse to always buy consumer goods: **instead borrow, share, exchange.**



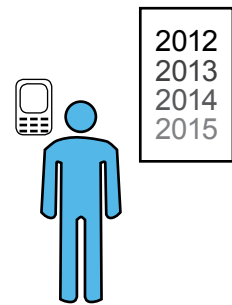
### REDUCE

Pay attention when buying consumer goods that they **consume little and were fairly produces.** (eg. through appropriate certifications).



### RE-USE

Use consumer goods for a long time and **use them up completely.**



### REPAIR

**Maintain and repair** consumer goods so that you can use them for a long time.



### RECYCLE

Avoid waste and **hand consumer goods on to others or recycle them.**



Source: adapted from BMBF 2012, p. 39

## >>> RECYCLING

### **General information on the subject of recycling**

More and more electronics are being produced worldwide, and new devices are emerging on the market all the time. The rapid technical developments, for example, the boom in the smartphone market leads to an increased demand and a quick service life cycle of electronic devices. Thus, the average service life of cellular phone is only 18-24 months.<sup>102</sup> A large part of the devices could be used much longer, while others are deliberately designed by the manufacturer in such a manner that they are not suitable for long-term use<sup>103</sup>. Old cellular phones contain pollutants as well as valuable resources. To handle both of them responsibly, a long-term use of cellular phones as well as proper recycling processes are of significant importance.

### **The travel route of an old cellular phone**

For old cellular phone, there are different disposal or re-use options depending on whether they are still in working order or not, which will be briefly outlined in the following:

Handover to a different user or resale

The long-term use of cellular phone or the use of second-hand phone helps extend the overall life-cycle. By repairing them, the devices can be used longer or switch the owner several times, which in turn protects resources and the environment.

### **Storage in drawers**

It is estimated that approximately 86 million old and unused cellular phones were stored in German households in 2012<sup>104</sup>. Since about 65-80% of the components of a cellular phone can be recycled, there is a wealth of raw materials available in these drawers<sup>105</sup>. Through the low return rate of cellular phone, only 2-3% of the stored and handed over devices in Germany are properly recycled<sup>106</sup>. Due to this low rate, a lot of valuable raw materials are lost which could otherwise be returned to the recovered substances cycle. The disposal of a cellular phone via the domestic waste also represents a great loss of raw materials<sup>107</sup>.

### **Depositing**

Nowadays, there are many ways to dispose of discarded cellular phones. An already established opportunity is the free-of-charge depositing at recycling sites or municipal collection points. In recent years various cellular network operators have also established a redemption system for cellular phones. Additionally, various civil society initiatives offer a collection system for old cellular phones. In most cases, the collected cellular phones are first checked regarding their functionality. Functional devices are repaired and resold as used devices within Europe or in countries of the global South. If cellular phones are no longer suitable for re-use, they will be introduced to the recycling process.

## >>> PROPER RECYCLING

### **General information**

So far, it is possible to extract about 17 of 60 substances contained in the cellular phone through the proper recycling method. This procedure is especially used for metals such as Copper, Cobalt, nickel, tin or Silver.<sup>108</sup> The throughout the world, there are only a few plants that can properly recycle e-waste. The five major recycling companies for technology metals are located in Germany, Belgium, Sweden, Japan and Canada<sup>109</sup>.

### **Recycling procedures**

For the cellular phone recycling, there is a distinction between the recycling of batteries and the recycling of the remaining cellular phone parts. The initial step of the recycling process is the removal of the battery from the phone<sup>110</sup>. The extraction of the metals is usually performed with a special

melting process. Depending on which metal is to be extracted, different procedures are applied.<sup>111</sup> The cellular phone batteries are recycled in separate systems<sup>112</sup>.

### **Advantages of the recycling process**

#### **High recovery rate**

Through a proper recycling, it is possible to extract a high percentage of the metals.

#### **Filtering of toxic substances**

At the same time it is possible to filter toxic substances that are released during the recycling process, thus rendering them harmless<sup>113</sup>.

#### **Contribution to climate protection by reducing CO2 emissions**

<sup>102</sup>comp. BMBF 2012, p. 52

<sup>103</sup>comp. Südwind 2012, p. 26

<sup>104</sup>comp. BITKOM 2012

<sup>105</sup>comp. BMBF 2012, p.52

<sup>106</sup>comp. BMBF 2012b, p. 1

<sup>107</sup>comp. BMBF 2012b, p. 1

<sup>108</sup>comp. BMBF 2012a, p. 2

<sup>109</sup>comp. Germanwatch 2012, p.32

<sup>110</sup>comp. BMBF 2012, p. 55

<sup>111</sup>comp. BMBF 2012, p. 55

<sup>112</sup>comp. BMBF 2012, p. 59

The metals recovered by the recycling process have a higher concentration of raw material, as the ore extracted through mining. The production of raw materials through recycling therefore causes relatively lower CO<sub>2</sub> emissions than the production of raw materials through mining and thus contributes to the environmental protection.

#### **Reduction of social and environmental problems**

The utilization of secondary raw materials obtained from the

recycling process, reduces the demand for primary raw materials. As a result, humans as well as the environment will be less burdened through the resource extraction and the disposal.

#### **Reduction of the raw materials shortage and defusing of conflicts**

Raw materials are limited and they are becoming scarcer and more expensive. By obtaining secondary raw materials, distribution battles for raw materials can be defused and a shortage of raw materials can be pushed into the future<sup>114</sup>.

## **>>> IMPROPER RECYCLING**

#### **General information**

Because the proper recycling is often more expensive than the export, all devices are often exported as used technology. If the devices sold are no longer functional, then this type of resale is actually an illegal export of e-waste. A large proportion of the e-waste in Europe will be shipped to countries of the global South. In 2005, for example, some 1.9 million tons of electronic waste were transported from the EU primarily to China, India and West Africa<sup>116</sup>.

#### **Recycling procedures**

The old and dysfunctional devices from Europe and up in the countries of the global South, very often in illegal landfills or in small informal recycling companies. Common methods of the non-professional recycling include the burning of waste in the open air for the production of Copper, melting of soldering metals on charcoal grills, and the lixiviation of metals with acid baths<sup>117</sup>.

#### **Disadvantages of the procedure**

##### **Dangers for humans and the environment**

Numerous dangerous pollutants are released through this process, which can significantly burden the health of workers and the people in the area.<sup>118</sup>

##### **Low recovery rate**

In addition, simple recycling methods recover far less secondary raw materials less than proper recycling methods. In modern systems, around 95% of the precious metals can be recovered, whereas the recovery rate in unprofessional facilities is only 25%.<sup>119</sup>

In addition to the already mentioned risks and hazards it is however pointed out, that the recycling of electronic waste represents an important economic factor for many countries in the southern part of the globe, and thus ensures the livelihood of numerous people. In this context there is a great demand for the establishment of professional recyclers.

## **>>> REGULATIONS ON THE RECYCLING**

#### **International regulations**

There are various directives and regulations on waste management and recycling, which must be implemented by all member states in the European judicial area. Two of the most important directives are briefly introduced in the following:

RoHS - directives on the restriction of hazardous substances  
RoHS stands for „Restriction of certain Hazardous Substances“, meaning „Limitation of the use of hazardous substances“. This directive is used to restrict the use of certain hazardous substances in electrical and electronic equipment, and

is an effective tool for the curbing of six hazardous substances (such as lead, mercury, cadmium or hexavalent chromium), which were previously used in electronic devices.<sup>120</sup>

#### **Updated WEEE directive on electrical and electronic equipment waste**

The WEEE directive stands for „Waste of Electrical and Electronic Equipment“, and is the central guideline for the avoidance of electrical as well as electronic waste, and for the facilitation

<sup>113</sup>comp. BMBF 2012a, p. 1

<sup>114</sup>comp. Germanwatch 2012, p. 21

<sup>115</sup>comp. Germanwatch 2012, p. 14; comp. BMBF 2012a, p. 5

<sup>116</sup>comp. Germanwatch 2012, p. 14

<sup>117</sup>comp. BMBF 2012, S. 57; comp. Germanwatch 2012, p. 14f

<sup>118</sup>comp. BMBF 2012, S. 57; comp. Germanwatch 2012, p. 14f

<sup>119</sup>comp. Germanwatch 2012, p. 17

of a reuse, recycling or other usage forms. Hereby, the goal is a reduction of the waste that needs to be processed and to improve the environmental performance of the commercial entities engaged in the treatment of this waste.<sup>121</sup>

The guidelines also state that manufacturers of electrical and electronic equipment must take back and properly dispose of, or recycle their old devices within the scope of their WEEE product responsibility<sup>122</sup>.

## >>> ALTERNATIVE COURSES OF ACTION

### **On the policy level**

#### **Creation of incentives for the construction of new recycling facilities**

Even professional recycling facilities can only extract a portion of the metals from the cellular phone, because there is a lack of minimum amounts of scrap metal, technical knowledge and the necessary equipment. In some cases, proper recycling is more expensive than the export, which is why the resale of old appliances is often more profitable than the recycling process.<sup>123</sup> A possible remedy here is the offering of investment incentives for the construction of new facilities and their further development.<sup>124</sup> In this context, however, the necessity is also pointed out that the recycling industry in the countries of the southern global regions must also be restructured or modernized in a greater social and environmentally friendly manner<sup>125</sup>.

#### **Introduction of a cellular phone deposit**

The incentive for consumers to deposit their cellular phone for recycling could be increased by introducing a cellular phone deposit. In this context it has been proposed, to add a surcharge to the sales price of a cellular phone in the form of a deposit of €10, which will be paid back when the cellular phone is returned. Such a cellular phone deposit system would allow the recycling industry to conduct a more precise calculation regarding the extent of capacities required for the processing of e-waste in the future. This could create investment incentives for the construction of new facilities.<sup>126</sup>

#### **Introduction of a cellular phone collection bin**

The collection rate of cellular phones could also be increased through the introduction of a cellular phone collection bin, in which consumers could conveniently dispose their old devices<sup>127</sup>.

#### **Better implementation of the e-waste export ban**

Even though the WEEE guidelines are considered as an important step to curb the export of e-waste, it is pointed out that further binding provisions for the unique distinction

between used electronic equipment and e-waste are still required<sup>128</sup>. For example, a functional test could be used to mark functional devices with a specific label, which could then help to decisively identify e-waste and thus impede the export.<sup>129</sup>

### **At the level of the manufacturers**

#### **Creation of transparency within the re-use recycling chain**

With respect to the manufacturer it is pointed out that these can help limit the amount of e-waste export through the development and implementation of guidelines regarding the export of electrical appliances. In this context, also the greater use of a more efficient return system is also stated<sup>130</sup>. In addition, the manufacturers can also increase their support for a transparency within the recycling chain, by depicting the further processing route a device will undergo after it has been deposited.

#### **Production of environmentally friendly products**

The problem of emitted poisonous substances during the recycling process could be eliminated, through the production of environmentally friendly devices in which hazardous substances such as PVC are avoided<sup>131</sup>.

#### **Facilitating the repair of cellular phones**

The life of cellular phone can be extended through the provision of spare parts by the manufacturer for the repair of the equipment.<sup>132</sup>

### **At the level of the consumers**

#### **Extension of the usage time or handover of the cellular phones to subsequent users**

A prolonged use of cellular phones significantly contributes to the protection of the environment and resources. Also handover to a subsequent user or resale of still-functioning devices means that fewer new devices must be produced<sup>133</sup>.

#### **Proper recycling of old devices**

If old cellular phones are no longer functional and a repair isn't

<sup>120</sup>comp. Germanwatch 2012, p. 23

<sup>121</sup>comp. Germanwatch 2012, p. 24

<sup>122</sup>comp. BMBF 2012, p. 57

<sup>123</sup>comp. Germanwatch 2012, p. 18

<sup>124</sup>comp. Südwind 2012, p.27

<sup>125</sup>comp. Germanwatch 2012, p. 29

<sup>126</sup>comp. Südwind 2012, p. 27

<sup>127</sup>comp. BMBF 2012, p. 54

<sup>128</sup>comp. Germanwatch 2012, p. 30;

comp. Südwind 2012, p. 27

<sup>129</sup>comp. Germanwatch 2012, p. 30

<sup>130</sup>comp. Germanwatch 2012, p. 31

<sup>131</sup>comp. Germanwatch 2012, p. 34

<sup>132</sup>comp. Germanwatch 2012, p. 34

economically feasible, a proper recycling will be the best option to further use the raw materials contained in the device and thus reduce the consumption of primary raw materials<sup>134</sup>. Nowadays, old devices can be dropped off at various locations, for example, at recycling centres, retail chains, fundraising events hosted by social and environmental organizations and at the collection points of the cellular network operators. In order for consumers to be able to ensure that their old devices are properly recycled, it is essential that they inform themselves about what exactly will happen with their old cellular phone.

## SOURCES USED

- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012: „Die Rohstoff-Expedition“ (The Raw-Material Expedition). Discover what's inside of your/a cellular phone! Learning and working material.
- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012a: Factsheet 12. Cellular phone recycling data.
- BMBF (Federal Ministry for environment, nature conservation and nuclear safety) 2012b: Factsheet 13. Different ways for the cellular phone return: collection and ReUse as art.
- Germanwatch (Hrsg.) 2011: Old cellular phones & PCs. Too valuable for the trash bin. Tips for the handling of old electronic equipment. Berlin.
- Germanwatch (Hrsg.) 2012: Old cellular phones & PCs. Background information on the problem of e-waste. Berlin.
- Südwind 2012: from the mine to the consumer. The value creation chain of cellular phones. Siegburg.

### Internet

- BITKOM 2012: [www.bitkom.org/de/presse/74532\\_74350.aspx](http://www.bitkom.org/de/presse/74532_74350.aspx)

<sup>133</sup>comp. Germanwatch 2011, p. 4

<sup>134</sup>comp. Germanwatch 2011, p. 4

# >>> HOW SHOULD THE OLD CELLULAR PHONE BE DISPOSED OF? FLASH-LIGHT ROUND

The participants can formulate their own proposals regarding the disposal of old cellular phones. The participants will state their proposals within the framework of a flash-light round, and will realize through an idea exchange which disposal and further utilization options are available for their old cellular phone.

 Plenary

 5 Min.

 Pens, flipchart paper, moderation cards, graph (copy template)

## Preparation

Following question for the flash-light round will be recorded on a flipchart paper:

- What happens to your old cellular phone if you no longer want to use it or it becomes defective?

The graph to visualize the travel routes of an old cellular phone will be printed out (see copy template).

## Implementation

The participants will express their views consecutively in a short flash-light round or formulate a keyword for the following question:

- What happens to your old cellular phone if you no longer want to use it or it becomes defective?

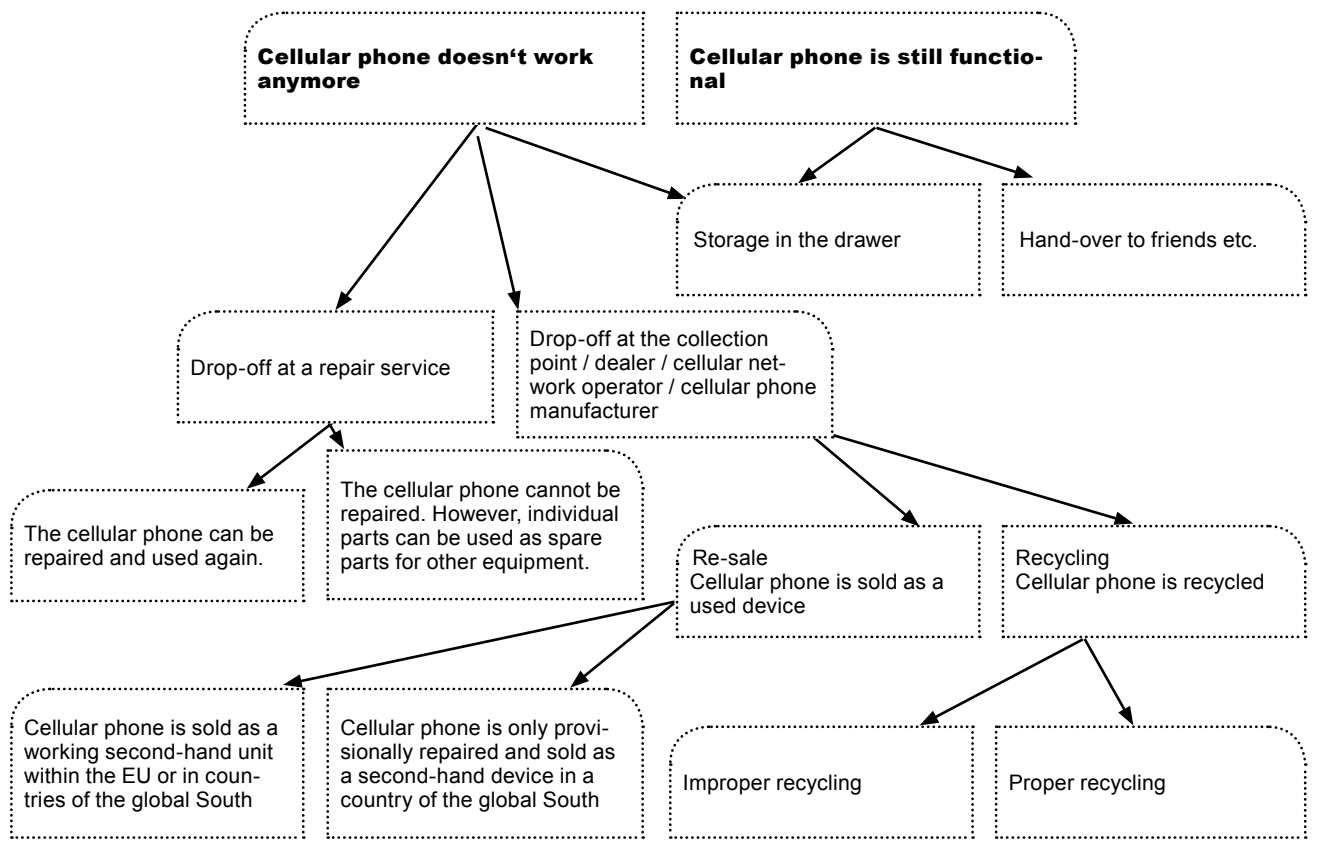
The teacher will record the results on moderation cards and attach these to the flipchart paper, on which the initial question is written.

## Evaluation

Using the sketch, the teacher will visualize the possible travel routes of an old cellular phone.

The created materials can then be hung up in the showcase „recycling“ (see method „What’s App?!“).

## HOW SHOULD THE OLD CELLULAR PHONE BE DISPOSED OF?





# >>> THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE A GAME TO HIGHLIGHT THE DISPOSAL AND USAGE OPTIONS

Participants may state different disposal or further use options for old cellular phones as well as the associated advantages and disadvantages.

Within the scope of the game, the participants will learn methods for the disposal or continued, use as well as pros and cons.

## Preparation

Game plan (see copy template 18) and the playing cards (see copy template 19) will be printed on coloured paper.

- Questions card (red)
- Drawer (yellow)
- Hand-over (orange)
- Recycling (green)
- Re-sale (blue)

The playing cards are cut to size.

Dice and game pieces will be provided.

## Implementation

### Explanation of the game (5 Min.)

The participants are divided into groups of up to four people. The teacher will explain the game-play based on the following rules. The participants will play the game in their group.

### Gameplay and rules (20 Min.)

Each player selects a game piece and places it on the starting field. The game cards are placed upside down next to the playing field. The person of the group who has rolled the highest number, will begin to roll the dice to start the game. Then, every player will roll the dice during their turn, which will proceed in a clockwise direction. The result of the dice indicates how many fields the game piece may move forward.

If a game piece lands on a white field, nothing will happen and the next player can play.

If the game piece lands on a coloured field, the player must draw a card with the corresponding colour, and may perform an action depending on the respective event field is:

#### Red field: question cards


A question and three possible answers will be read to the player by his/her neighbouring player to the left. The player must select an answer, and if it's correct he/she may climb up the ladder. If the answer is wrong the game piece will remain on the field.

#### Yellow field: drawer

The player must draw the corresponding card and read it out loud. He/she will follow the instructions. In the category drawer the game piece

 Group work, plenary

 40 Min.

 Game plan, playing cards (copy template), dice, game pieces

always moves back two fields.

#### Orange field: hand-over

The player must draw the corresponding card and read it out loud. He/she will follow the instructions. In the category drawer the game piece always moves forward two fields.

#### Green field: recycling

The player must draw the corresponding card and read it out loud. He/she will either climb the ladder up or down according to the instructions of the game.

#### Blue box: re-sale

The player must draw the corresponding card and read it out loud. He/she will either climb the ladder up or down according to the instructions of the game.

The first player to reach the goal field will win the game.

### Evaluation (15 Min.)

Within the scope of a class discussion, the key findings from the game will be summarized once again and manifested on flipchart paper by the teacher. The categories „Drawer“, „Hand-over“, „Recycling“ and „Re-sale“ which were developed in the context of the flash light round, will serve as an orientation. The discussion may orient itself in line with the following questions:

- What's the critical issue if old cellular phones land in the drawer?
- What possibilities exist to extend the life of old cellular phones?
- Which aspects should be considered when cellular phones are re-sold and why?
- Which aspects should be considered for the recycling of cellular phones and why?

The created materials can then be hung up in the showcase „recycling“ (see method „What's App?!“).

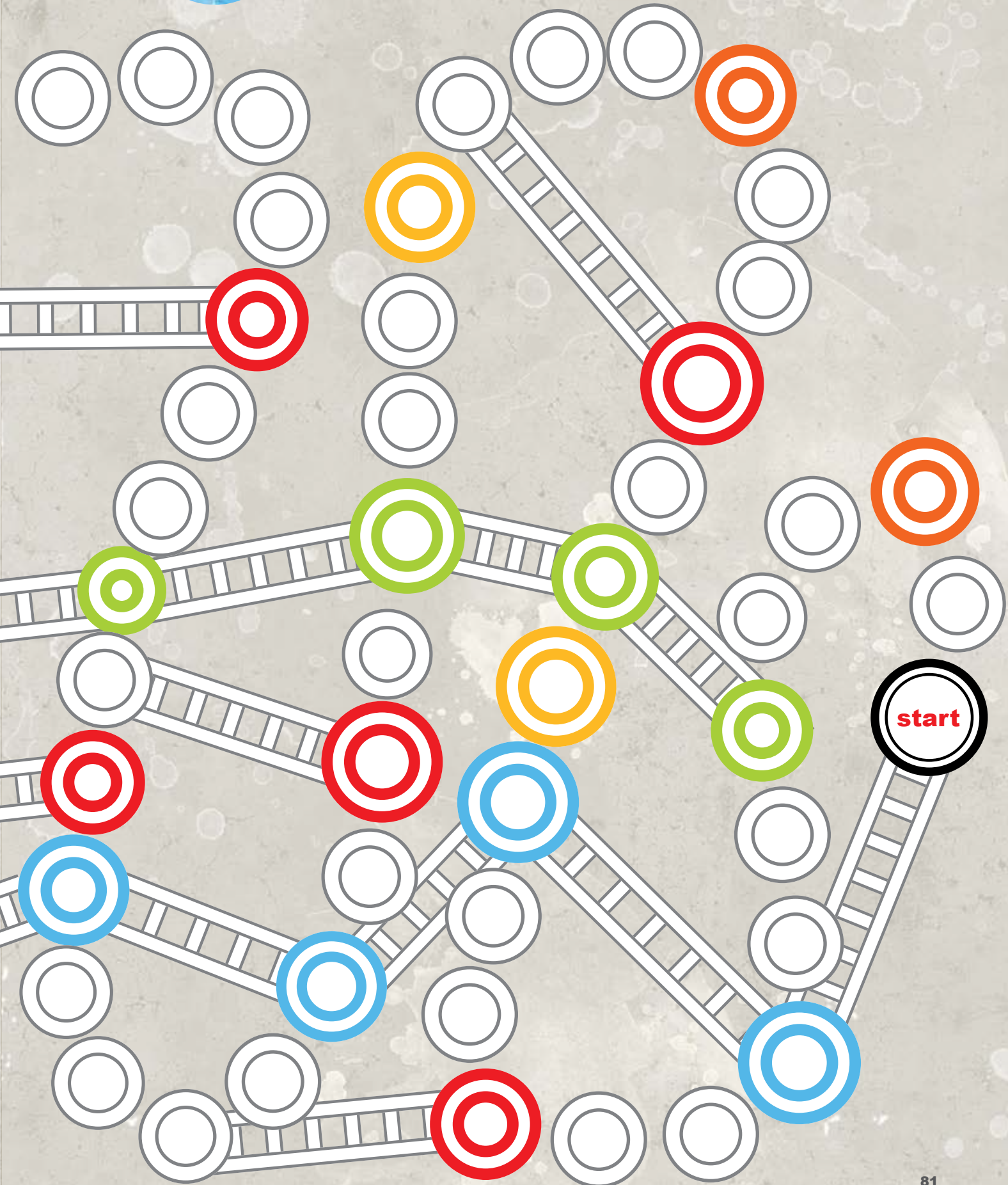
#### Tips for the teacher

If no game pieces are available, small objects or small money coins can be used as a substitute. If a dice is not available, a corresponding app can be loaded onto the cellular phone.





# THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE





## THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE: PLAYING CARDS RECYCLING

Your cellular phone doesn't work anymore and is transported to an industrial recycling facility in Belgium. There, 17 of the substances contained in the phone can be recovered. Climb up the ladder!

Your cellular phone doesn't work anymore and is transported to an industrial recycling facility in Japan. Through modern technical procedures, the raw materials contained in the cellular phone can be recovered to a great extent with very little loss. Climb up the ladder!

Your cellular phone doesn't work anymore and is transported to an industrial recycling facility in Canada. The toxic fumes resulting from the recycling process are captured and filtered. Humans and the environment are not burdened. Climb up the ladder!

Your cellular phone doesn't work anymore and is transported to an industrial recycling facility in Sweden. The recovery of raw materials contained in the cellular phone reduces the need for new raw materials. Humans and the environment are less burdened due to the lower degree of raw materials mining. Climb up the ladder!

Your cellular phone doesn't work anymore and is transported to an industrial recycling facility in Germany. The recovery of raw materials contained in the cellular phone reduces the conflicts for valuable resources. Climb up the ladder!

Your cellular phone doesn't work anymore, and you drop it off at a cellular phone collection point. It will be conveyed to a recycling plant, and properly recycled there. Climb up the ladder!

Your cellular phone doesn't work anymore, and you drop it off at a collection point of your cellular network operator. It will be conveyed to a recycling plant, and properly recycled there. Climb up the ladder!

Your cellular phone doesn't work anymore and is transported to a recycling company in China. Your cellular phone will be burned on an open fire pit, to recover metals such as Copper. The toxic fumes are harmful to humans and the environment. Climb down the ladder!

Your cellular phone doesn't work anymore and is transported to a recycling company in India. The metals contained in the phone are removed using acid baths. No gloves and breathing masks are used, which means there is a high risk of injury. Climb down the ladder!

Your cellular phone doesn't work anymore and is transported to a recycling company in Ghana. Your cellular phone will be burned on an open fire pit. The raw materials contained in the cellular phone can only be recovered in small quantities. Climb down the ladder!

Your cellular phone doesn't work anymore and is transported to a recycling company in Nigeria. The metals contained in the phone are removed using acid baths. Only a few of the raw materials contained in the phone can be recovered. Climb down the ladder!

Your cellular phone doesn't work anymore and is transported to a recycling company in India. The residual materials resulting from the recycling process are disposed of on wild garbage dumps. The groundwater and the soil are poisoned. Climb down the ladder!

Your old cellular phone no longer works and you throw it in the garbage. The valuable resources contained therein can no longer be recycled or recovered. Climb down the ladder!

Your old cellular phone no longer works and you throw it into a lake. The toxins contained therein cannot be disposed of properly anymore and will pollute the environment. Climb down the ladder!



## THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE PLAYING CARDS HAND-OVER

You purchase a protective case for your cellular phone. This protects your cellular phone against a fall, scratches and moisture. Your cellular phone can be used longer. Advance two fields!

You turn off your cellular phone at night or activate the airplane mode. This will preserve your battery. Your cellular phone can be used longer. Advance two fields!

You activate the sleep mode as often as possible on your cellular phone. This will preserve your battery. Your cellular phone can be used longer. Advance two fields!

A water bottle leaks in your backpack and your cellular phone gets wet. You quickly turn it off, take out the battery, put it in rice and then have it repaired. Your cellular phone can be used longer. Advance two fields!

You stumble, your cellular phone then falls down and the display breaks. You inform yourself on how much a new display cost, and because it is cheaper than buying a new cellular phone, you choose to replace it. Your cellular phone can be used longer. Advance two fields!

Because of a software error your cellular phone can no longer start up. You send the cellular phone in for repairs, where new software is installed. Your cellular phone can be used longer. Advance two fields!

For months you've been waiting, that the new model of your cellular phone brand is finally available on the market, and now it's finally here! You give away your old phone to your little brother. Your cellular phone can be used longer. Advance two fields!

Your cellular phone doesn't have all the features you would like to use. Thus, you purchase a new cellular phone and give away your old phone to your friend. Your cellular phone can be used longer. Advance two fields!

You want to buy a new phone, but don't have the necessary money yet. You sold your old phone on the Internet and now have the money available that was missing. Your cellular phone can be used longer. Advance two fields!

You want to enter into a new cellular phone contract. If you choose for the „SIM only“ variant where you continue to use your old phone and only receive a new SIM card. Your cellular phone can be used longer. Advance two fields!



## THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE: PLAYING CARDS RE-SALE

You purchase a new cellular phone for yourself. Your old cellular phone still works, and you drop it off at a cellular phone collection point. Cellular phone is sold as a used device to a non-profit organization. Your cellular phone can be used longer. Climb up the ladder!

Your cellular phone doesn't work anymore. You drop it off at a collection point of your cellular network operator. Your cellular phone will be repaired and sold as second-hand equipment to India. Your cellular phone can be used longer. Climb up the ladder!

Your cellular phone doesn't work anymore. You drop it off at the dealer of your choice. Your cellular phone will be repaired and sold as second-hand device to your neighbour. Resources are conserved. Climb up the ladder!

Your cellular phone doesn't work anymore. You drop it off at the repair shop. Individual parts can be used as spare parts for other equipment. Other cellular phones can be used longer. Climb up the ladder!

Your old working cellular phone will be sold by your dealer to a company in Germany. The environment is protected by the short transport distances. Climb up the ladder!

Your cellular phone doesn't work anymore. Your cellular phone will be repaired and sold as second-hand equipment to Pakistan. After a few days, it will become defective. Individual parts cellular phone will be used as spare parts. Other cellular phones can be used longer. Climb up the ladder!

Your cellular phone doesn't work anymore. You will drop it off at a location of your cellular phone manufacturer. Your cellular phone will be repaired and sold as second-hand equipment to Nigeria. Your cellular phone can be used longer. Climb up the ladder!

Your cellular phone doesn't work anymore. It won't be fully repaired, but sold as a working second-hand unit to India. There, it can only be used for a few days. It will become e-waste. Climb down the ladder!

Your cellular phone doesn't work anymore. It won't be repaired, but sold as a working second-hand unit to Ghana. It will end up as e-waste on a wild landfill. Climb down the ladder!

Your cellular phone doesn't work anymore. It won't be repaired, but sold as a working second-hand unit to Pakistan. It will end up as e-waste in a recycling plant, where it will not be recycled properly. Climb down the ladder!

Your old cellular phone will end up as illegal e-waste on a wild landfill in Ghana. The toxins contained in the cellular phone will pollute the groundwater and soil. Climb down the ladder!

Your old cellular phone will end up as illegal e-waste on a wild landfill in Nigeria. The smoke resulting from the combustion of the waste will degrade the quality of the air. Climb down the ladder!

Your old cellular phone will end up as illegal e-waste in a recycling company in India. The toxic fumes resulting from the combustion are harmful to humans and the environment. Climb down the ladder!

Your old cellular phone will end up as illegal e-waste in a recycling company in Pakistan. The acid used in the recycling process severely injures the workers! Climb down the ladder!



## THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE: PLAYING CARDS DRAWER

Your cellular phone doesn't work anymore. Your cellular phone will end up in your drawer. The therein contained raw materials could have been reused through recycling. Go back two fields!

You purchase a new cellular phone for yourself. Your old cellular phone is still functional. Your cellular phone will end up in your drawer. For your new cellular phone, it is also necessary to mine new raw materials. Go back two fields!

The battery of your cellular phone is defective. Your cellular phone will end up in your drawer. The purchase of a new battery for your phone model would not of been expensive. Go back two fields!

You spill your coke onto your cellular phone and it doesn't work anymore. Your cellular phone will end up in your drawer. If you would've reacted quicker, your cellular phone could have been repaired. Go back two fields!

During your sprint to catch the bus, your cellular phone falls out of your pocket and the glass of the display shatters. Your cellular phone will end up in your drawer. Repair of your display would have been cheaper than buying a new cellular phone. Go back two fields!

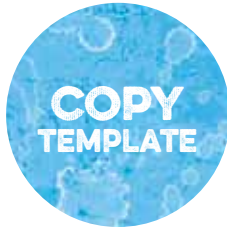
Because of a software error your cellular phone can no longer start up. Your cellular phone will end up in your drawer. A new software update could have repaired your cellular phone. Go back two fields!

You can no longer charge your phone, because the connector for the charger cable is bent. Your cellular phone will end up in your drawer. Through the use of the spare part your cellular phone could have been repaired. Go back two fields!

You enter into a new cellular phone contract and receive a new phone. Your cellular phone will end up in your drawer. Your grandma, who still doesn't have a cellular phone yet would've been very happy with your old phone. Go back two fields!

You want to enjoy also the latest features with your cellular phone, and purchase a new model. Your cellular phone will end up in your drawer. Your girlfriend, whose cellular phone just broke would have been happy to use your old phone. Go back two fields!

You purchase the new cellular phone model from your favourite brand. Your cellular phone will end up in your drawer. Your uncle would've loved to buy it from you. Go back two fields!



# THE TRAVEL ROUTE OF YOUR OLD CELLULAR PHONE: QUESTION CARDS

How many cellular phones were sold worldwide in the year 2012?

- 1) approx. 500 million
- 2) approx. 1.5 billion**
- 3) approx. 3.5 billion

How many cellular phone are manufactured worldwide per second?

- 1) 3 cellular phones
- 2) 16 cellular phones
- 3) 36 cellular phones**

According to estimates, how many unused cellular phones are currently stored in German households?

- 1) 5 million
- 2) 50 million
- 3) 86 million**

How long is the average life time of a cellular phone?

- 1) 18 months**
- 2) 24 months
- 3) 36 months

What percentage of the stored or shared cellular phones are recycled properly at the end of their life cycle?

- 1) 2-3%**
- 2) 5-7%
- 3) 10-12%

What percentage of the components of a cellular phone can be recycled?

- 1) 10-25%
- 2) 35-50%
- 3) 65-80%**

A cellular phone is comprised of about 60 different materials. How many of these materials can be recycled?

- 1) 8 materials
- 2) 17 materials**
- 3) 40 materials

How high is the estimated material value of the sorted-out cellular phones in German households?

- 1) 1 million Euro
- 2) 35 million Euro
- 3) 65 million Euro**

How many kilograms of e-waste accumulate in Europe per person in a single year?

- 1) 8 kg
- 2) 15 kg**
- 3) 22 kg

How many estimated tons of electronic waste were exported from the EU to China, India and West Africa in 2005?

- 1) 1.5 million tonnes**
- 2) 5 million tonnes
- 3) 10.5 million tonnes

How many tons of e-waste accumulate in total annually around the world?

- 1) 20-50 million tons**
- 2) 50-80 million tons
- 3) 80-110 million tons

What is the percentage of the electronic equipment exported to Ghana and Nigeria which will NOT continue to operate there?

- 1) 35-40%
- 2) 50-55%
- 3) 75-80%**



# >>> STORY OF ELECTRONICS FILM ANALYSIS

**Cause clarification of the short-term cellular phone usage:** The participants know why cellular phones and electronic devices are only designed for short-term use, and which mechanisms drive our consumption patterns. You can state alternative courses of action to facilitate a sustainable handling behaviour.

The participants will watch a film and discuss various aspects during the subsequent group work.

## Preparation

A laptop with internet access, a beamer, as well as the film „Story of Electronics“ will be provided. The film is available under [storyofstuff.org/movies/story-of-electronics/](http://storyofstuff.org/movies/story-of-electronics/) (English with German subtitles)

Following questions will be recorded on two posters:

### 1. Poster:

- What irritated you / appealed to you / surprised you while you were viewing the film?
- What is the meaning of the term „Designed for the garbage dump“?
- What are the reasons for this kind of product development?
- What consequences for the environment and human beings are stated?

### 2. Poster

- How can manufacturers be encouraged to develop more sustainable/long-lasting products?
- What influence do consumers have, when it comes to changing the system?

## Implementation

### Film (8 Min.)

The participants will watch the film „Story of Electronics“ together.


### Evaluation (12 Min.)

After the film, the following questions will be discussed in the plenary (1. poster):

- What irritated you / appealed to you / surprised you while you were viewing the film?
- What is the meaning of the term „Designed for the garbage dump“?
- What are the reasons for this kind of product development?

 Plenary, group work

 45 Min.

 Film „Story of Electronics“, laptop with Internet access, projector, flipchart paper, moderation cards, pens

- What consequences for the environment and human beings are stated?

The teacher will record the results in writing, and assign the answers to the respective questions.

### Film (8 Min.)

The participants will now watch the film again and thereby particularly pay attention to the following aspects:

### Group Work(7 Min.)

- Causes for the short-term cellular phone usage
- Role of consumers

After the film, the participants together with their respective neighbour will discuss the following questions (2. poster):

- How can manufacturers be encouraged to develop more sustainable/long-lasting products?
- What influence do consumers have, when it comes to changing the system?

The participants will record their answers the writing.

### Evaluation (10 Min.)

Individual participants will briefly present their answers in the plenary. The teacher will record the answers in writing on moderation cards, and assign them to the respective questions.

The created materials can then be hung up in the showcase „recycling“ (see method „What’s App?!“).

- Possibilities for further work
- To deepen the discussion, the following questions may be submitted:
- If a „treasure is stored in the cellular phone“, then why are manufacturers not yet interested in taking back their products for recycling?
- Why is the amount of returned cellular phones so low? How could the incentives for consumers be increased?

# >>> CELLULAR PHONES DESIGNED FOR THE GARBAGE? GAME AND CORNER DISCUSSION

**Cause clarification of the short-term cellular phone use:** The participants know why the cellular phones are only developed and produced for a short-term use. They can state possible solutions for a sustainable development and production.

Within the scope of the game „Cellular phones designed for the garbage?“ and the corner discussion, the participants will discover that the cellular phones are only developed and produced for a short-term use. They will learn about possible solutions. In the course of the ensuing discussion, the participants will discover the reasons for this short-term development and production method. They will discover the influencing options that they have as a consumer.

## **Preparation Game „Cellular phones designed for the garbage?“**

The cards for the game „Cellular phones designed for the garbage?“ will be printed out and cut to size (see copy template).

## **Preparation Corner discussion**

Following questions will be recorded on moderation cards:

### **1. Card: unification of accessories:**

For which other cellular phone accessories would a unification make sense?

### **2. Card: facilitation of repairs:**

Was there an instance where the repair of your old cellular phone was not worthwhile, and for which repair was this the case?

3. Card: facilitating the use of applications:

Have you ever purchased a new cellular phone to take advantage of the latest applications, and which applications were these?

### **4. Card: facilitating the recycling process:**

What else could be observed during the development and production, to facilitate the recycling of cellular phones?

The moderation cards will be hung up concealed in the corners of the room.

## **Implementation Game „Cellular phones designed for the garbage?“ (20 Min.)**

Each participant will receive one game card. Either a problem or a solution will be described on the card.

The participants will read the cards and then embark on the search for his/her partner. Once

 **Group work, plenary**

 **45 Min.**

 **Game cards (copy template), moderation cards, pens**

they have found this partner they will remain in their position within the room. Once all the pairs have formed, the teacher will ask which pair would like to read their statement out loud. A pair will read their statement, and if it's correct they will proceed to the corner of the room representing the theme assigned by the teacher. All other pairs with the same statement will also proceed into this corner. Now, another pair will read their statement out loud, and if it's correct also proceed into the respective corner. The pairs with the same statement will also join this group in this case. This process will be repeated until all statements have been mentioned, and all four corners are occupied.

If the pairs whose cards don't match have found each other, they will be asked to mix themselves once again and to search for his/her matching partner once again, and to then proceed into the appropriate corner together.

## **Implementation Corner discussion (5 Min.)**

After all participants have been assigned to the proper corners, they will turn over the concealed cards and discuss the respective question.

## **Implementation Game Evaluation (20 Min.)**

All participants will gather again in the plenary. The subsequent discussion may orient itself along the following questions:

- Why haven't manufacturers developed and produced any cellular phones to date, which can be used longer and recycled more easily?
- What can consumers do to promote a sustainable cellular phone production?

The teacher will record the answers of the participants on moderation cards.

The results of the pair search and the discussion of the results will be summarized once again by the teacher.

The created materials can then be hung up in the showcase „recycling“ (see method „What's App?!“).



# CELLULAR PHONES DESIGNED FOR THE GARBAGE? PLAYING CARDS

## STANDARDIZATION OF CELLULAR PHONE ACCESSORIES

When buying a new cellular phone the previous charger cable usually can't be used, because the new device is a model from a different manufacturer or the latest model of the current manufacturer. It is therefore so necessary to acquire a suitable charging cable specifically for the respective cellular phone with each new purchase. The old cables often end up in the drawer, although they are still in working order. Resources are also consumed through the new production.

Through the development and production of uniform charging cables, the old charger can continue to be used even when a new cellular phone is purchased. This extends the life cycle of the charging cable. The consumption resources can be reduced.

## FACILITATION OF REPAIRS

Cellular phones are often designed in such a manner that individual parts can only be exchanged with a great effort or not at all. Through this, the repair of the display for certain cellular phones is a major effort, because the touch screen protection film is attached directly to the glass and must therefore also be replaced. Due to the high cost, a repair is sometimes not the most economic solution and a new device is purchased. The usage time of a cellular phone is not extended.

Through the development and production of cellular phones, where individual parts can easily be replaced or repaired, the costs for the repairs are significantly lowered and the purchase of new equipment can be avoided. The usage time of cellular phones can be extended.

## FACILITATING THE USE OF NEW APPLICATIONS

Not all of the applications developed and offered by cellular phone manufacturers can be used with all of their phone models and operating systems. In some cases, the purchase of a new device is the only way you can use the latest applications or functions. The usage time of a cellular phone is not extended.

The purchase of a new device can be prevented through the development of applications that can be used with all cellular phones. The usage time of cellular phones can be extended.

## FACILITATING THE RECYCLING PROCESS

Recycling of cellular phone is often impaired by their construction. For example, with some models the battery can only be removed from the housing with a great effort or not at all. However, this separation is an important step in the recycling process.

The development and production of cellular phones, which can be taken apart easily can significantly facilitate the recycling process.

Many toxic substances are used in the production of cellular phones. These emerge again during the recycling process. In an industrial plant, they can be captured and filtered. If the recycling is conducted over open fire pits, these toxins are emitted unfiltered, and can endanger humans and the environment.

Through the production of cellular phones which contain fewer toxins, the dangers for humans and the environment can be mitigated if the recycling is performed over an open fire.

# >>> THE OPT-OUT: ALL'S WELL THAT ENDS WELL?

**Retrospective observation of the project day and summary of the results:**

The participants know the life cycle of a cellular phone and can reflect on what they have learned.

Based on the materials created during the course of the project, the participants will receive a summary of the project day.

### Preparation

The materials created during the course of the project, will be made available in the appropriate „showcase“.

### Implementation

The teacher will summarize the key aspects of the addressed topics with a few words and in chronological order. Thereby, the teacher will travel from „showcase“ to „showcase“ and comment the created materials.

### Evaluation

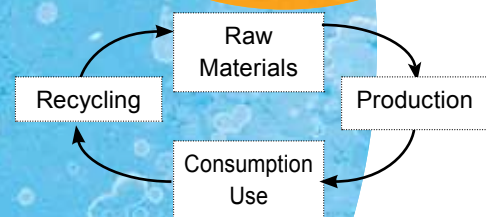
To highlight the coherency's once again, the

 Lecture

 15 Min.

 Working materials of the project day

headings of the individual „showcases“ will be removed and placed onto the chalkboard as a life cycle of a cellular phone:



### Possibilities for further work

After the lifecycle has been placed onto the chalkboard, options for action regarding the individual aspects can be collected in the plenary once again.

# >>> WORLD CAFÉ DISCUSSION OF ACTION OPTIONS AND ALTERNATIVES

The participants know what alternatives and options for action are available to the cellular phone industry, and which of them they would personally like to implement.

At various tables, the participants will exchange their views regarding various issues within the scope of the „World cafe“.

### Preparation


Question cards will be provided for every topical aspect of the project day(s). The corresponding question cards will be printed out (see copy template). Several tables will be set up, each with 4 or more chairs. A „Café atmosphere“ (snacks, candles, music in the background) is created.

### Implementation

The participants will gather around the tables and discuss a question. After 10 minutes, the teacher will give a signal and ask participants to change

 Plenary

 30-45 Min.

 Question cards (copy template), snacks, music, candles, flipchart paper

the table to discuss a further question.

### Evaluation

The participants will be asked to state their preferred alternatives and options for action, when they are called up. The teacher will write a protocol on an easily readable list.

### Versions

The participants will remain at a table and present the results of their discussion in the plenary.



# WORLD CAFÉ: QUESTION CARDS

## RAW MATERIALS

Your aunt tells use that she needs a new cellular phone, but doesn't want to support the exploitation of the miners. What is your advice to her?

You would like to contribute to enforcing that only certified raw materials will be used for cellular phones in the future. What are your specific demands? Onto whom do you exert pressure?

You want to personally become engaged for the fair production of cellular phones. What can you do?

You want to start a campaign regarding the topic of „Fair cellular phones“ at your school? What kind of ideas do you have? How can they be implemented?

## PRODUCTION

You want to personally advocate the implementation of better working conditions in the production of cellular phones. What are your specific demands? What possibilities do you see?

Their uncle tells them that he needs a new cellular phone, but doesn't want to support the exploitation of the miners. What is your advice to him?

You want to force cellular phone companies to ensure a fair production of their devices. How do you proceed? How can consumers apply pressure on their manufacturer?

You want to start a campaign regarding the topic of „Clean cellular phones“ at your school. What ideas do you have? How can they be implemented?

## CONSUMPTION & USE

A friend would like to sustainably use his cellular phone, but doesn't know how. What is your advice to him? What feasible proposals for the sustainable cellular phone usage would you suggest to him?

You would like to convince your aunt to give you a Fair-phone for your birthday. What arguments will you present?

You want to start a campaign regarding the topic of „Sustainable cellular phone consumption“ at your school. What ideas do you have? How can they be implemented?

## RECYCLING

You would like to persuade your cellular phone dealer to properly recycle defective phones. How do you proceed? What are your specific demands?

Your aunt wants to purchase a new phone, but doesn't want to store the old one in the drawer. What is your advice to her?

You want to start a campaign regarding the topic of „Cellular phone recycling“ at your school. What ideas do you have? How can they be implemented?

### Tips for the teacher

Open questions or central aspects that arise during the course of the project day, can be used by the teacher spontaneously as questions for the World Café.  
There shouldn't be more than 4-5 question cards used.

### Possibilities for further work

If during the evaluation concrete suggestions should arise for the performance of actions, a further discussion can be initiated regarding the possible implementation (also refer to Method description: „Becoming active“ - design of a joint action).

## >>> BECOMING ACTIVE DESIGN OF A JOINT ACTION

The participants can apply their attained knowledge to everyday life.

The participants collect ideas on how they want to be active as a class, agree on one or more specific actions and determine the further course of action.

### Preparation

A circle of chairs will be created. A card with the inscription „becoming active“ is positioned in the middle.

### Implementation

The participants will sit in a chair circle and have a few minutes to review the project in their mind's eye.

The participants form exchange groups with their direct neighbours and collect ideas for a practical approach, which they would like to implement together with their class and they regard as feasible.

The ideas are presented in the plenary, discussed and recorded on a flipchart paper in consecutive order by the teacher.

Each participant can now vote on an idea that he / she would like to implement and regards as feasible. The voting can be carried out by a show of hands or by him / her making a short line behind the idea of choice. The action with the most votes will then be implemented.

### Evaluation

After the end of the event the participants will gather in the plenary for an evaluation. The evaluation may focus on the following questions:

- Was the activity successful in your opinion?
- What worked well / what could've worked better?
- Why?

Alternatively, you can use the five finger feedback.



Group work, plenary



30 Min.



Flipchart paper, pens

The teacher will paint a flat hand with fingers spread out on the black board and assigns a feedback dimension to each finger:

- Thumb: I liked that!
- Index finger: I would like to point something out! I noticed that!
- Middle finger: I didn't like that! It could have gone better!
- Ring finger: That is a take-away! I'll remember that! I will continue to use that!
- Little finger: That wasn't covered enough! I missed that!

The participants will now show their stretched out hand one after the other and give a short feedback to each „finger“.

### Versions

After the voting, the two ideas with the most votes will be selected and discussed in-depth in two planning groups. The participants will assign themselves to their desired group, determine the next steps and write them down on a flipchart paper. Among other things, the following points should be clarified:

- What do we want to achieve?
- How do we do that?
- Who is involved?
- When should the action occur?
- Where should the action occur?
- What resources do we need for that?

Afterwards, the groups will reassemble in the plenary, present their action plan, jointly answer final questions and distribute open tasks.

# KNOW YOUR LIFESTYLE



Sustainable Consumption in

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