Ethics in Mining

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state 2026-03-04 17:46:58

Content

Ethics in Mining 5
1 General reflections on ethics and mining 7
1.1 SMG - The study module at a glance 7
1.2 DDT - Definition and differentation of terms 7
1.2.1 Preliminary remarks on the definition of terms 8
1.2.2 The notion of moral 9
1.2.3 Professional ethics 16
1.2.4 Moral competence 19
1.2.5 The notion of ethics 22
1.2.6 Relativisim 25
1.2.7 Law 28
1.2.8 Summary - Definition and differentiation of terms 31
1.2.9 Knowledge test - Definition and differentiation of terms 32
1.2.10 References - Definition and differentation of terms 33
1.3 DPE - Different points of reference for ethics 34
1.3.1 Preliminary remarks on different points of reference for ethics 35
1.3.2 Descriptive ethics versus normative ethics 36
1.3.3 Material versus formal ethics 39
1.3.4 Duty as a point of reference for ethical behaviour 41
1.3.5 Discourse as a point of reference for ethical behaviour 43
1.3.6 Utility as a point of reference for ethical behaviour 45
1.3.7 Virtue as a point of reference for ethical behaviour 47
1.3.8 Practical judgement 48
1.3.9 Justice as a point of reference for ethical behavior 49
1.3.10 Summary - Different points of reference for ethics 52
1.3.11 Knowledge test - Different points of reference for ethics 53
1.3.12 References - Different points of reference for ethics 54
1.4 DCC - Differentiation in complex reference contexts 57
1.4.1 Preliminary remarks on differentiation in complex reference contexts 58
1.4.2 Applied ethics 58
1.4.3 Area ethics 62
1.4.4 Summary - Differentiation in complex reference contexts 66
1.4.5 Knowledge test - Differentiation in complex reference contexts 67
1.4.6 References - Differentiation in complex reference contexts 68
1.5 SRR - Basic structure and relevance of the concept of responsibility 69
1.5.1 Preliminary remarks on basic structure and relevance of the concept of responsibility 71

1.5.2 Basic dialogue structure of responsibility ... 72
1.5.3 Guilt and liability ... 73
1.5.4 Types of responsibility ... 74
1.5.5 Summary - Basic structure and relevance of the concept of responsibility ... 81
1.5.6 Knowledge test - Basic structure and relevance of the concept of responsibility ... 83
1.5.7 References - Basic structure and relevance of the concept of responsibility ... 84
1.6 MCR - Modern challenges to responsibility ... 85
1.6.1 Preliminary remarks on modern challenges to responsibility ... 87
1.6.2 The imperative of responsibility ... 88
1.6.3 Cumulative effects and unforeseeable consequences ... 93
1.6.4 System responsibility ... 96
1.6.5 Unconditional responsibility and practical caution ... 100
1.6.6 Summary - Modern challenges to responsibility ... 101
1.6.7 Knowledge test - Modern challenges to responsibility ... 103
1.6.8 References - Modern challenges to responsibility ... 103
1.7 VCO - The view on companies and organisations ... 106
1.7.1 Preliminary remarks on the view on companies and organisations ... 107
1.7.2 Corporate social responsibility ... 108
1.7.2.1 CSR and sustainability ... 110
1.7.2.2 CSR and business ethics ... 111
1.7.3 Core responsibility ... 111
1.7.3.1 Necessity of core responsibility ... 112
1.7.3.2 The model of core responsibility ... 114
1.7.4 Summary -The view on companies and organisations ... 120
1.7.5 Exercises - The view on companies and organisations ... 121
1.7.6 Knowledge test - The view on companies and organisations ... 122
1.7.7 References - The view on companies and organisations ... 123
1.8 VOS - The view on society – sustainability and mining ... 125
1.8.1 An introduction to sustainability and its concepts ... 127
1.8.2 Sustainability concepts ... 128
1.8.3 Advanced concepts of sustainability ... 134
1.8.4 Sustainable development ... 140
1.8.4.1 Predecessors to the SDGs ... 141
1.8.4.2 From Limits to Growth to the Millennium Development Goals (MDGs) and to the Sustainable Development Goals (SDGs) ... 144
1.8.5 Environmental, social and corporate governance (ESG) ... 147
1.8.6 Summary - The view on society – sustainability and mining ... 150
1.8.7 Knowledge test - The view on society – sustainability and mining ... 151

1.8.8 References - The view on society – sustainability and mining 153
2 Empirical cases 159
2.1 Averkios Gaitanis on Ethical Mining and the Future of the Greek Island Milos 159
2.2 Activist Nolo on Mining and the Future of Hambach Forest near Jülich, Germany 164
3 Specific ethical challenges in mining 168
3.1 Conflicts of Interest in Mining 168
3.1.1 Defining Conflicts of Interest in Mining 170
3.1.2 Four Key Categories of Conflicts of Interest 172
3.1.3 Managing Conflicts of Interest in Mining 173
3.1.4 Case Study: Small-Scale Gold Mining in Ghana 173
3.1.5 Case Study: EITI in Indonesia 175
3.1.6 First-hand case studies by Chris Masurenko 176
3.1.7 References - Conflicts of Interest in Mining 176

Appendix

I Bibliography 179
II List of figures 203
III List of media 204
IV List of tasks 205
V Glossary 206

Ethics in Mining

About this book

The Russian war of aggression against Ukraine and the use of energy sources as a means of exerting political and social pressure dramatically illustrate the importance of raw materials. This current example of energy supply is exemplary for a large number of raw materials that play a key role in our economic and social lives. The global demand for raw materials is constantly growing. Take metal raw materials, rare earths and industrial minerals, for example, which are needed to maintain our standard of living. The extraction of raw materials and their supply chains have global dimensions and affect not only economic and political interests, but also the fundamental ethical and moral concerns of affected communities.

Raw materials engineers plan, organise and monitor the extraction of raw materials. Extractive engineers work in a field of tension between technical feasibility, economic profitability, legal protection and ecological and social responsibility. However, the training of raw materials engineers has so far lacked the teaching of basic ethical knowledge that would enable future engineers to recognise and evaluate ethically questionable situations and form their own sound judgement.

The following chapters aim to help close this gap and invite engineers and other interested parties - both in science and practice as well as in education or in the profession - to deal with ethical issues in the raw materials sector. Fundamental issues, practices in the extractive industry and the challenges it faces are highlighted. These will be made tangible using case studies.

Video

Mehr als Technik: Ethics in Mining

YouTube – Berliner Hochschule für Technik (BHT)

1 General reflections on ethics and mining

Content

Content

1 General reflections on ethics and mining
1.1 SMG - The study module at a glance
1.2 DDT - Definition and differentation of terms
1.3 DPE - Different points of reference for ethics
1.4 DCC - Differentiation in complex reference contexts
1.5 SRR - Basic structure and relevance of the concept of responsibility
1.6 MCR - Modern challenges to responsibility
1.7 VCO - The view on companies and organisations
1.8 VOS - The view on society – sustainability and mining

1.1 SMG - The study module at a glance

Coming soon

1.2 DDT - Definition and differentation of terms

by Anna S. Hüncke, Matthias Schmidt and Nina Küpper

Last updated: 2025/03/26

In this learning unit, important basic terms that arise in connection with ethics are explained and differentiated from one another. This sharpens the focus on the interrelationships and provides an initial terminological tool for categorising ethically conflicting issues in mining.

Content

Content

1.2 DDT - Definition and differentation of terms
1.2.1 Preliminary remarks on the definition of terms
1.2.2 The notion of moral
1.2.3 Professional ethics
1.2.4 Moral competence
1.2.5 The notion of ethics
1.2.6 Relativisim
1.2.7 Law
1.2.8 Summary - Definition and differentiation of terms
1.2.9 Knowledge test - Definition and differentiation of terms
1.2.10 References - Definition and differentation of terms


learningobjec-
tives

Learning objectives

After completing this learning unit, you should:

- be able to distinguish between ethics, morals, professional ethics and the law.
- be able to recognise whether a situation is a moral or ethical conflict.
- be able to explain what moral competence is and why it is so important.
- be able to recognise and discuss the problem of ethical relativism.


Outline

Outline

Based on the concept of morality, this learning unit differentiates between the notions of professional ethics, ethics and law. This enables an initial terminological categorisation of conflicting issues. This is complemented by explaining the importance of moral competence. The latter is particularly important in our dynamic and pluralistic society with its different value systems. Accordingly, the issue of relativism is discussed, which goes along with a diversity of values and calls for resolution.

You will need approx. 90 minutes to work through the learning unit and approx. 120 minutes to complete the exercises.

1.2.1 Preliminary remarks on the definition of terms

As we have already seen in the first learning unit in the section "Two opposing disciplines", the connection between the two disciplines of ethics and mining has a strong legitimacy. At a very basic level, the focus is on the concept of human dignity as a point of reference for "right" thinking and behaviour. However, not every decision-making situation or action to which one would ascribe an ethical quality has to be argued with such heavyweight concepts as human dignity or human rights.

Just as in the conventional "everday society", there are also numerous situations in the "globalised resource scarce society" in which ethical competence is required in order to avoid simply following a so-called "regulars' morality" or submitting to the opinion of (supposed) majorities. This is to say nothing of the value judgments of populist opinion-makers who serve certain moral concepts and exploit them for their own interests. Topics like resource (in)dependence and scarce resources have become the focus of heated debates. An example is whether the member states of the European Union should mine their own rare earths and become less dependent on the world market or whether they should not press ahead with mining for environmental reasons.

websource

Further reading:

Zimmermann, Antonia (March 15, 2023). (Politico).

Article: Europe's green dilemma: Mining key minerals without destroying nature.

Reading time 10 minutes

In order to achieve greater clarity in everyday life with its sometimes confusing mix of often contradictory moral values and to strengthen one's own ethical judgement, some key terms and concepts are presented below and differentiated from one another. This scientific sharpening of the relationships provides a terminological toolbox with which one is able to analyse and evaluate situations or upcoming challenges from an ethical point of view, so that one can arrive at the best possible "good" and ethically sound decision.

1.2.2 The notion of moral

In everyday language, the two terms ethics and morals are usually used synonymously and are not scrutinised further. They are often linked with paternalism. This is because moral statements are often associated to commandments or prohibitions. Its visible symbol is the raised index finger. It may reprimand one as well as show one the supposedly correct path from the perspective of its holder. But it is not that simple. Ethics and morality do not have to be associated with paternalism per se, nor are they identical notions.

Morality can be understood as a system of values that is actually practised in a community. It is a system of order that reflects the values and meaning of a community of practice. In such a community, certain patterns of behaviour have developed over time that claim validity for the members of this very community. This means that the members of such a community have expectations towards the actions of its members and are expected to fulfil these expectations themselves. A moral action is therefore an action that follows the rules of the prevailing morality of the group.

Moral actions follow rules to which the members of a community of values submit. The actions and their results are recognised via social mechanisms. If a person has acted well and correctly in the sense of the moral community, they receive appreciation and

praise. If, on the other hand, they have violated the applicable moral standards, they will be disrespected and reprimanded and socially ostracised.[1]

example

A mining company explores a new raw material deposit in a remote region and begins mining after obtaining the necessary authorization and finishing the exploration of the deposit. The operation gives the region an economic boost and expands its infrastructure. At the same time, the extraction of raw materials changes the landscape and endangers the environment and the population's livelihood. As a result, one group could see the company as a positive promoter of the region and the indigenous people. In contrast, another group could call it an irresponsible destroyer of the environment and indigenous culture.

exercise

Task 1.1: Moral judgments (transfer task)

Research a raw material extraction project:

- Describe the influence of the operation in your own words.
- Analyse the project for reactions (comments, discussions, etc.) in which moral judgements are expressed. Specify the reactions.
- Are the judgements consistent? Can you identify different values? Can you identify whether the (different) judgements come from different communities?
- How do you assess the impact of the mining operation? Why do you assess it this way?

Time to complete approx. 75 min.

Communities have morals. And morals can differ from community to community. We can see that there is not just one morality, but many morals. Some morals will be reconcilable and compatible with each other, while others may be contradictory or even incompatible. The mining example just outlined already points to these possible tensions.

In Depth

From: Manstetten (2005) *Ma05* , *p.97-99* , authors' translation

Original Quote

Individualismus und Fundamentalismus: Varianten einer begründungsfreien Moral

[1] Pieper (2017) *Pi17* , *p.26*

> Der Eindruck, dass Ethik bei aller Anstrengung des begründenden und Argumente kritisch prüfenden Verstandes zu beliebigen Resultaten führe, kann die Ansicht stützen, das Ziel, eine angemessene Moral und damit ein gerechtes Leben zu begründen, sei unmöglich zu erreichen. Diese Ansicht findet sich in bestimmten Tendenzen des Zeitgeistes wieder. Zwei davon möchte ich benennen, die nur auf den ersten Blick gegensätzlich erscheinen.
>
> 1. Viele Menschen vertreten die Ansicht, jeder Mensch möge doch für sich entscheiden, welche Moralvorstellungen er sich zu eigen macht. Was gut und gerecht ist, sagen sie, ist für jeden etwas anderes. Begründungen dafür sind weder möglich noch nötig. Daraus folgt, dass jedes Individuum, ohne auf ernsthaften Widerspruch zu stoßen, behaupten könnte: „Was gut und gerecht ist, ist es deswegen, weil ich es gut und gerecht finde." Wir können dies als ein individualistisches Verständnis von Moral bezeichnen.
> 2. Zunehmend machen sich Menschen, nicht nur in islamischen Ländern, sondern auch in den USA und Europa, eine bestimmte, meist rigide Moral zu eigen, die sie auf ihre jeweilige Religion, etwa das Christentum, das Judentum oder den Islam, zurückführen. Diese Moral wollen sie nicht begründen, weil sie von vorneherein sicher zu sein behaupten, dass diese und keine andere in ihrer Religion bzw. in den heiligen Schriften dieser Religion vorgeschrieben und eben deshalb die richtige sei. Selbst wenn andere Leser dieser Schriften daraus ein anderes Verständnis von Moral ablesen, lassen sie sich davon nicht berühren. Dies kann als ein fundamentalistisches Verständnis von Moral bezeichnet werden.
>
> Individualistische und fundamentalistische Moral behaupten, Reflexion über Moral sei weder nötig noch möglich. Sie geraten jedoch strukturell in die gleichen Schwierigkeiten: Was geschieht im Konfliktfall zwischen einander widersprechenden Vorstellungen von Moral?
>
> Betrachten wir den Individualismus: Jedes Individuum mag seine eigene Moral haben, solange es nur um das eigene Leben geht und niemand sonst von den Handlungen dieses Individuums betroffen wird; aber wenn Menschen in einer Ehe, einer Familie, einem Verein, einem Unternehmen oder einem Staat miteinander leben, handeln, und teilen, müssen sie sich über bestimmte moralische Prinzipien einig sein, sonst gibt es keinerlei längerfristige Interaktion zwischen ihnen bzw. sonst werden die Interaktionen zwischen ihnen in Streit und Krieg enden. Die individualistische Moral funktioniert nur, solange entweder die Individuen nur für sich leben oder solange sie – zufälligerweise – nur mit solchen Menschen in Verbindung treten, die sich an die gleiche Moral wie sie halten.

Bei den Fundamentalisten ist es scheinbar anders: Sie behaupten, eine Moral zu vertreten, die für alle Menschen gilt. Das funktioniert aber nur, wenn ausschließlich Fundamentalisten ein- und derselben Richtung miteinander Umgang pflegen. Was aber machen sie, wenn sie auf Menschen treffen, die dieser Moral nicht folgen – etwa Fundamentalisten mit einer anderen Moral? So gesehen, ist ihr ethisches Problem nicht strukturell verschieden von dem der Individualisten. Während aber die Individualisten im Konfliktfall erkennen könnten, was das Problem ihrer individualistischen Moralbegründung ist, neigen Fundamentalisten zu einer gewissen Blindheit: Da sie ohnehin im Recht sind, müssen die anderen im Unrecht sein. Es macht dann allerdings einen großen Unterschied, ob Fundamentalisten in der Lage sind, das Dasein dieser anderen irgendwie zu ertragen, oder ob sie der Überzeugung sind, man müsse alle, die das eigene Verständnis von Moral nicht teilen, bekämpfen, unterdrücken oder gar töten. In jedem Fall aber zählen die Moralvorstellungen der anderen nicht, man ist ihnen moralisch immer überlegen.

Bei aller Kritik am Individualismus und Fundamentalismus – beide Positionen können durchaus verführerische Züge annehmen. Dass jeder tun und lassen kann was er will – das ist eine Utopie, die tief in den Grundlagen moderner Gesellschaften ihre Wurzeln hat und dem Lebensgefühl vieler Menschen von heute entspricht. Dieses Lebensgefühl kann aber leicht umschlagen in ein anderes Lebensgefühl: dass die Lebensformen und Lebensumstände vieler Menschen in diesen Gesellschaften etwas zutiefst Haltloses in sich tragen. Dieses Lebensgefühl kann sich schließlich in den Charakter dieser Menschen einschreiben und Depression und Verzweiflung bewirken. Wer das moderne Lebensgefühl in dieser Weise an sich selbst erfährt, mag den Fundamentalismus als attraktiv erachten, insofern damit ein angeblich unzerstörbarer Halt mitgeliefert wird: Alles Zweifeln und Fragen ist zu Ende. Verlangen nach radikaler Selbstbestimmung und Sehnsucht nach einem sicheren Halt jenseits des eigenen Selbst – das kann sich sogar beides in einem Menschen finden.

Individualism and fundamentalism: Variants of a morality without reasons

The impression that ethics leads to arbitrary results despite all the efforts of the reasoning and critically examining mind can support the view that the goal of establishing an appropriate morality and thus a just life is impossible to achieve. This view is reflected in certain tendencies of the Zeitgeist. I would like to highlight two of these, which only appear contradictory at first glance.

1. Many people take the view that everyone should decide for themselves which moral concepts they want to adopt. What is good and just, they say, is something different for everyone. Reasons for this are neither possible nor necessary. It

follows that every individual could claim, without encountering serious contradiction: "What is good and just is so because I think it is good and just." We can characterise this as an individualistic understanding of morality.

2. Increasingly, people, not only in Islamic countries but also in the USA and Europe, are adopting a certain, usually rigid morality that they attribute to their respective religion, such as Christianity, Judaism or Islam. They do not want to justify this morality. This is because they claim to be certain from the outset that this very morality and no other is laid down in their religion or in the holy scriptures of this religion and is therefore the right one. Even if other readers of these writings deduce a different understanding of morality from this, they are not moved by it. This can be described as a fundamentalist understanding of morality.

Individualist and fundamentalist morality claim that reflection on morality is neither necessary nor possible. However, they run into the same structural difficulties: What happens in the case of conflict between contradictory ideas of morality?

Consider individualism: each individual may have their own morality as long as it is only about their own life and no one else is affected by the actions of that individual. But when people live, act and share with each other in a marriage, a family, an association, a company or a state, they have to agree on certain moral principles. If not there will be no long-term interaction between them or else the interactions between them will end in conflict and war. Individualistic morality only works as long as either the individuals live only for themselves or as long as they - coincidentally - only interact with people who adhere to the same morals as they do.

It is apparently different with fundamentalists: they claim to represent a morality that applies to all people. However, this only works if only fundamentalists of one and the same ideology engage with each other. But what do they do when they meet people who do not follow this morality - such as fundamentalists with a different morality? Seen in this light, their ethical problem is structurally not different from that of the individualists.

However, while individualists could recognise the problem with their individualistic moral justification in the event of a conflict, fundamentalists tend to be blind for that: since they are right anyway, the others must be wrong. However, it makes a big difference whether fundamentalists are somehow able to tolerate the presence of these others or whether they are convinced that everyone who does not share their own understanding of morality must be fought, suppressed or even killed. In any case, the moral concepts of others do not count, they are always morally superior to them.

Despite all the criticism of individualism and fundamentalism - both positions can certainly take on seductive traits. Everyone can do what they want - this is a utopia that has its roots deep in the foundations of modern societies and corresponds to many people's attitude to life. However, this attitude to life can easily turn into a different attitude to life: i.e. that the lifestyles and living conditions of many people in these societies carry a deep aimlessness. This attitude to life can ultimately become inscribed in the character of these people and cause depression and despair. Those who experience the modern attitude to life in this way may find fundamentalism attractive. This is insofar as it provides a supposedly indestructible foothold: All doubting and questioning is obsolete. The desire for radical self-determination and the longing for a secure foothold beyond one's own self - both can even be found in one person.

When differentiating between different morals, it is a challenge to determine what constitutes the actual community that is being talked about. One might often make reference to cultural similarities and differences. After all, it is very much cultural moulding and socialisation that provide people with the values which guide them. In most everyday situations, it is not even necessary to go to principle moral commandments as "Thou shalt not kill" or to discuss whether the death penalty is morally right or wrong in certain cases.

We are certainly all familiar with examples where we have put our foot in our mouth in encounters with people from other cultures. We can become particularly aware of violating moral rules when travelling: The often unquestioned patterns of behaviour practised at home might be punished in the host country with a wrinkled nose or even more severe consequences.

example

Think of kissing or flirting in public, for example, which might be considered a permissive behaviour in many westernized societies, but which can cause a moral uproar in other countries.

It is obvious that different groups only share the prevailing moral concepts to a greater or lesser extent. Especially in diverse and pluralistic societies, such as the Indonesian, South African or US-American society, one can assume that there are many different groups with specific group morals that have differentiated themselves over time. To ensure that these morals are not implacably hostile to each other, a certain tolerance is required, especially in the public sphere. And it needs a discursive agreement based on "principles whose recognition can be rationally understood and therefore expected of everyone" [*Pi17 , p.12*]. Nevertheless, even in such liberal societies, there are still

serious offences against decency and morality. They can be described as a violation of a taboo in everyday language [cf. *Pi17* , *p.30*].

In Depth

From: Pieper (2017), pp 31-32 [*Pi17*], authors' translation

Original Quote

Tabu

Als besonders schwerer moralischer Verstoß gegen Anstand und Sitte gilt im alltäglichen Erfahrungsbereich die Verletzung eines Tabus. Waren es früher hauptsächlich der religiöse und der sexuelle Bereich, in dem durch Verbote unter Androhung schlimmer Strafen gewisse Bereiche (des Heiligen, Numinosen, bzw. bestimmte erotische Spielarten) ausgegrenzt, als unzugänglich („unberührbar") deklariert und der menschlichen Praxis untersagt wurden, so gilt heute die individuelle Privat- und Intimsphäre eines jeden als tabu. Sowohl die zu weit gehende Zurschaustellung dieses persönlichen Bereichs vonseiten bekannter Persönlichkeiten als auch unverschämte Übergriffe vonseiten der Massenmedien werden trotz der Neugier des Publikums in der Regel von den meisten als schamloser, unanständiger Eingriff in Dinge, die die Öffentlichkeit nichts angehen, empfunden.

Bei allen Tabus muss grundsätzlich immer wieder gefragt werden, inwieweit sie in der Tat noch dem Schutz wirklicher Werte wie Menschenwürde und persönliche Freiheit dienen, oder ob sie nicht zu bloßen Druckmitteln entartet sind, um missliebiges Verhalten einzuschränken und Kontrollfunktionen über das erlaubte Maß hinaus auszudehnen. Tabus können veralten und aufgehoben werden, wenn sich herausstellt, dass die Menschen inzwischen einen natürlicheren oder aufgeklärteren Zugang zu dem ursprünglichen tabuisierten Bereich gefunden haben, sodass die alten Verbote hinfällig werden oder einer Modifikation bedürfen. Als Beispiele wären hier die veränderte Beurteilung des Inzests und der Homosexualität zu nennen.

Taboo

In everyday life, the violation of a taboo is considered a particularly serious moral offence against decency and custom. In the past it was mainly the religious and sexual sphere in which certain areas (of the sacred, the numinous, or certain erotic varieties) were marginalised, declared inaccessible ("untouchable") and prohibited for human practice. This was through prohibitions under the threat of severe penalties. Instead today everyone's individual private and intimate sphere is considered taboo. Despite the public's curiosity, both the excessive display of this personal sphere by well-known

personalities and outrageous encroachments by the mass media are generally perceived as a shameless, indecent intrusion into matters that are none of the public's business.

With all taboos, it must always be asked to what extent they still serve to protect real values such as human dignity and personal freedom. Or whether they have not degenerated into mere means of pressure to restrict unpopular behaviour and extend control functions beyond what is permitted. Taboos can become obsolete and be lifted if it turns out that people have now found a more natural or enlightened approach to the originally tabooed area. Then the old prohibitions become obsolete or require modification. Examples include the changed judgement of incest and homosexuality.


exercise

Task 1.2: Terms (reflection exercise)

Would you say that mining forms a community of practice whose members share common values and a common purpose? If so, which ones? Do you know any taboos that you assume the members of the mining community (more or less) share? What are they? What are the reasons for these taboos?

Time to complete approx. 15 min.

1.2.3 Professional ethics

A culture can be described as a superordinate community of values. It very fundamentally orientates the moral thinking and actions of the community as a whole. Within a culture there can be various special morals that have developed or evolved due to the specific characteristics of sub-communities. In relation to different professions, we can speak here of a professional ethics.


example

For certain groups of people, for example, one could speak of a "civil servant ethic", a "self-employed ethic" or perhaps also a "student ethic".

The respective morals of a professional group regulate in a more or less concrete way how one should behave as a member of this professional group. Even a gang of robbers, a mafia or a clan can be said to have morals, because these communities also follow rules that apply to their members and are enforced. Think, for example, of the commandment not to betray others or the moral duty to support the "family".

The vernacular uses the term "gangster's honour" here, which to a certain extent represents the professional ethos of a career criminal.[2]

Over time, different morals have developed for different professional groups. The respective ethos that applies to members of a profession therefore expresses the values that should apply to this group. They are binding, i.e. it is expected that the members of this group are committed to the moral demands that the profession entails.

example

Hippocratic Oath

Probably the best-known example of the moral standards of a professional group is the Hippocratic Oath. Members of the medical profession commit themselves to it. It is not known exactly who wrote the oath in its original form. However, it goes back by name to the Greek physician Hippocrates. He is said to have lived and worked around 2500 years ago.[3] Even in its original version, the oath formulated the service of humanity as its central moral imperative. The currently valid version of this medical vow is the "Declaration of Geneva". It has been adapted to modern times and was updated by the World Medical Association (WMA) in 2017. It ends with the promise "I solemnly swear this, freely and on my honour".[4] The oath thus indicates that its violation is a moral transgression. Correspondingly the doctor in question is dishonoured and discredited in the community of values. After all, the oath was taken voluntarily and has a self-binding character. This can also be seen in the formulation "I will ...".

In Depth

From: WMA (2017) *WMA17* , Official English translation of the Declaration of Geneva

Declaration of Geneva

AS A MEMBER OF THE MEDICAL PROFESSION:

I SOLEMNLY PLEDGE to dedicate my life to the service of humanity;

THE HEALTH AND WELL-BEING OF MY PATIENT will be my first consideration;

I WILL RESPECT the autonomy and dignity of my patient;

I WILL MAINTAIN the utmost respect for human life;

I WILL NOT PERMIT considerations of age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, sexual orientation, social standing or any other factor to intervene between my duty and my patient;

I WILL RESPECT the secrets that are confided in me, even after the patient has died;

[2] Pieper (2017) *Pi17 , p.29*
[3] Manjikian (2018) *Ma18 , p.15*
[4] World Medical Association (2017) *WMA17*

> I WILL PRACTISE my profession with conscience and dignity and in accordance with good medical practice;
>
> I WILL FOSTER the honour and noble traditions of the medical profession;
>
> I WILL GIVE to my teachers, colleagues, and students the respect and gratitude that is their due;
>
> I WILL SHARE my medical knowledge for the benefit of the patient and the advancement of healthcare;
>
> I WILL ATTEND TO my own health, well-being, and abilities in order to provide care of the highest standard;
>
> I WILL NOT USE my medical knowledge to violate human rights and civil liberties, even under threat;
>
> I MAKE THESE PROMISES solemnly, freely, and upon my honour.

There are no universal moral standards of the professional international mining industry. Given the two and a half millennia that lie between Hippocrates and today's mining professionals, this is hardly surprising. Nevertheless, numerous efforts are being made to establish moral imperatives and voluntary self-commitments in the raw material sector. These efforts include creating and implementing standards, guidelines, and best practices by various organizations. These aim to reduce or manage the social, environmental, and economic impacts of mining. One significant association is the International Council of Mining and Metals (ICMM), to which over 20 leading mining and metal companies belong. In 2003, the ICMM defined ten mining principles for sustainable development to promote ethical corporate governance, environmental responsibility, social performance, and respect for human rights. These are formulated as follows:

In Depth

From: ICMM - International Council of Mining and Metals *IC03*

Mining Principles

- Ethical Business: Apply ethical business practices and sound systems of corporate governance and transparency to support sustainable development.
- Decision Making: Integrate sustainable development in corporate strategy and decision-making processes.
- Human Rights: Respect human rights and the interests, cultures, customs and values of workers and communities affected by our activities.
- Risk Management: Implement effective risk-management strategies and systems based on sound science and which account for stakeholder perceptions of risks.

- Health and Safety: Pursue continual improvement in physical and psychological health and safety performance with the ultimate goal of zero harm.
- Environmental Performance: Pursue continual improvement in environmental performance issues, such as water stewardship, energy use and climate change.
- Conversation of Biodiversity: Contribute to the conservation of biodiversity and integrated approaches to land-use planning.
- Responsible Production: Facilitate and support the knowledgebase and systems for responsible design, use, re-use, recycling and disposal of products containing metals and minerals.
- Social Performance: Pursue continual improvement in social performance and contribute to the social, economic and institutional development of host countries and communities.
- Stakeholder Engagement: Proactively engage key stakeholders on sustainable development challenges and opportunities in an open and transparent manner. Effectively report and independently verify progress and performance.

Just as the Hippocratic Oath of the medical profession has changed over time, so have the Mining Principles. For instance, in June 2022, the ICMM Mining Principles were critically revised to eliminate harassment and unfair discrimination and achieve gender equity in this industry sector. Further adjustments seem likely in the future: In August 2024 the ICMM has issued a position statement on commitments towards indigenous people and effects on their lives.

1.2.4 Moral competence

Morality, understood as the factual value system of a community, regulates the coexistence of this community through its commandments and prohibitions. It determines the thoughts and actions of its members. People in such a community are socialised through everyday interactions but also through education and training. This occurs in such a way that the prevailing moral concepts are often unconsciously and unquestioningly taken for granted. It is often only when you are personally affected and realise that your own individual value system collides with group morals that you become aware of this self-evidence. In this sense, you would feel remorse if you acted in accordance with a moral system that you do not support.

Example 1

A classic example of the breakdown of such moral self-evident truths is the internal conflict that can arise in a situation where one does not want to betray a friend, but would be violating the moral commandment "Thou shalt not lie".

Example 2

In another example that is often cited, internal conflicts can arise in a pacifist who strictly rejects violence but suddenly finds him or herself in a situation in which the use of violence for self-protection appears to be the first option.

Example 3

In the area of mining, an inner conflict with remorse may arise if a construction equipment operator is tasked to level the sites of a resettled indigenous community to prepare the space for mining activities. While they may want to comply with their orders, they may also feel remorse due to the fact that the site consists of sacred land of the indigenous community, such as ancestoral graves.

The problematic situation for an individual who finds themselves in such a situation is that they are thrown back on themselves if there is no public authority or institution that could solve such a case in a generally binding manner. Also the individual cannot shift their own moral responsibility to such entity. Such cases of conflict depend on the individual concerned and their inner values. Ultimately they have to be decided by the individual themselves. Moreover the behaviour resulting from this individual decision must after all be justified and legitimised before others.

citation

From: Pieper (2017) *Pi17* , *p.33* , authors‘ translation

Original Quote

Doch ist die grundsätzliche Bereitschaft, eine solche Entscheidung zu rechtfertigen, vor anderen zu verantworten, ein Indiz dafür, dass die betreffende Person nicht unmoralisch ist, sondern dass es in Ausnahmefällen und Extremsituationen rechtens sein kann, den Anspruch einer bestimmten moralischen Norm zugunsten einer höher geschätzten Norm nicht zu erfüllen.

However, the fundamental willingness to justify such a decision, to justify it to others, is an indication that the person concerned is not immoral, but that in exceptional cases and extreme situations it may be right not to fulfil the demands of a certain moral norm in favour of a more highly valued norm.

A person can therefore also act morally even if they violate a moral standard. This sounds contradictory at first, but can be resolved if the term "acting morally" is analysed from two perspectives.

On the one hand, from the perspective of the applicable moral system, which demands that the applicable rules are adhered to. From this perspective, breaking the rules would be immoral and should be sanctioned.

On the other hand, from the perspective of the inner "will to do good", the unconditional desire to do the right thing in the given situation. From this perspective, one violates the applicable morals with good reason and still acts morally. This is the case even if one is sanctioned or disregarded by the community. One then refers to the concept of morality.

The aforementioned examples and the two perspectives on moral behaviour point to the fundamental freedom that every person has. This inner freedom is expressed in the fact that, despite all the sanctions and moral constraints of a community of practice, one can also act differently. In some cases one may even have to act differently out of one's own conviction. A person demonstrates moral competence by claiming their freedom in this way and taking a clear stance for good reason. That are reasons that arise from a person's unconditional desire to do good and for which s/he is responsible both to him/herself and to his/her fellow human beings.

citation

From: Pieper (2017) *Pi17* , *p.38* , authors‘ translation

Original Quote

Moralische Kompetenz im eigentlichen Sinne besitzt somit nicht derjenige, der den geltenden Moralkodex und das gängige Wertesystem fraglos internalisiert hat – so jemand wäre mit NIETZSCHE gesprochen nicht mehr als ein gut abgerichtetes Tier –, moralische Kompetenz besitzt vielmehr ausschließlich derjenige, der sich Moralität zum Prinzip seiner Willensbildung und Praxis gemacht hat.

Moral competence in the true sense is therefore not possessed by someone who has unquestioningly internalised the applicable moral code and the common value system. Such a person would be no more than a well-trained animal, to use NIETZSCHE's words. Instead moral competence is possessed exclusively by someone who has made morality the principle of his or her will forming and practice.

Morality here refers to the special inner quality of a person's morally relevant decisions and actions. It is the striving for goodness that has become a firm basic attitude, which utilises inner and outer freedom in order to act for good reasons. The more a community's prevailing moral system undermines this aspiration and uses power and coercion to enforce the established, perhaps outdated or imposed values of supposed authorities, the greater the need for moral competence and the examination of the morality of individual actions.

A moral system that forces its members to adhere to certain behaviours and fails to convince them loses its claim to moral commitment; a commitment that can only ever be based on the free self-commitment of individuals.

exercise

Task 1.3: Moral conflicts (exercise for reflection)

Please name or develop three examples in which raw material engineers may experience internal moral conflicts or remorse. Which moral imperatives or prohibitions collide here?

Time to complete approx. 15 min.

exercise

Task 1.4: Moral behaviour (knowledge exercise)

- Why is the following sentence only an apparent paradox: "A person can act morally even if they violate a moral code"?
- What is morality?
- Can the mafia have morals?
- What is moral competence?
- What is a professional ethic?
- How are offences against morality sanctioned?
- Why is mutual understanding particularly important in pluralistic societies?

Please explain your answers.

Time to complete approx. 45 min.

1.2.5 The notion of ethics

Ethics and morality are not the same. Nevertheless the terms are closely related and are often used synonymously outside the discipline of scientific ethics or in everyday language. This mixing of the terms can also be seen in the example of mining principles presented above, which was discussed from the perspective of moral behaviour. Mining principles as the professional ethos of a mining industry, if you like, can be interpreted as a moral system. It is a value system that applies to the raw material engineering community. The mining principles therefore fulfil the definitional requirements of a moral system. However, whether it really is an ethic still needs to be determined at this point. To do so, it is necessary to clarify what ethics actually means.

While the moral system of a community has the character of something self-evident, of valid rules that the members of this community accept unquestioningly, ethics goes a fundamental step further. As we have already seen in our discussion of moral competence and of individual morality, conflicts can arise between value systems. This is when the small but very important question "Why?" arises. This is because the "why" question puts the advocates of a prevailing moral system into a sometimes very uncomfortable position. They have to justify the values and prohibitions that are under scrutiny in this community of values. Why should I act this way, why should I not be allowed to act differently? These "why" questions call into question the prevailing moral rules and therefore shake the foundations and convictions of the very community. For instance, the idea of economical linear growth being what modern societies strive for can be questioned by the debate about finite resources and sustainability. Then questions of how we can use resources in the most efficient way and what can we do to recycle material come to the fore.

Asking why means asking for reasons. And in this question, at least if it is asked seriously, lies the possibility for counter-reasons. Further questioning may reveal that the reasoning structure may be inconsistent. In other words, the logic regarding the values of a community and the associated ideas of right and wrong, of good and evil, may be inadequate. This scrutinising and questioning challenges the prevailing morals and subjects them to a stress test. What was previously unquestionable in a community becomes questionable, the self-evident becomes subject to justification.

citation

From: Manstetten (2005) *Ma05* , *p.94* , authors‘ translation

Original Quote

Es ist nun immer ein Angriff auf die geltende Moral, wenn man fragt: Warum gilt dieses und nicht jenes? Denn damit wird unterstellt: Was gilt muss nicht gelten, es könnte auch ein anderes Gebot gelten.

It is always an attack on established morality to ask: Why does this apply and not something else? Because this is an insinuation: What is valid does not have to be valid, another commandment could also apply.

In authoritarian communities in particular, in which the monitoring of morality is used as a means of power, ethical questioning cannot only be an attack on the prevailing morals but also an attack on power and power relations. Then they are called into question and come under pressure.

Ethics is the reflection on morality. While morality is a binding system of values, ethics is the reflection on a given morality. This also involves the search for better morals, better reasons and better ways of living together in the community. It is about finding reasons and counter-reasons for certain moral positions, which are reflected in norms and rules.

citation

From: Manstetten (2005) *Ma05* , *p.95* , authors' translation

Original Quote

> Aber darüber hinaus geht es der Ethik auch und vor allem darum, schließlich zu einer möglichst gut begründeten Moral zu gelangen, zu einer Moral von der wir sagen können, dass sie für den Menschen die beste ist. Mit anderen Worten, das Ziel jeder ernstzunehmenden Ethik ist es, herauszufinden, was gut und gerecht ist derart, dass es sich auch in einer überzeugenden Begründung als gut und gerecht erweisen werden kann.

But beyond this, ethics is also and above all concerned with ultimately arriving at a morality that is as well founded as possible, a morality that we can say is the best for a human being. In other words, the goal of any serious ethics is to find out what is good and just in such a way that it can also prove to be good and just in a convincing justification.

The term "ethics in mining" has been recently used more frequently in the public domain, e.g. a google search of "ethics in mining" in distinction to "data mining" delivers 37.900 results:

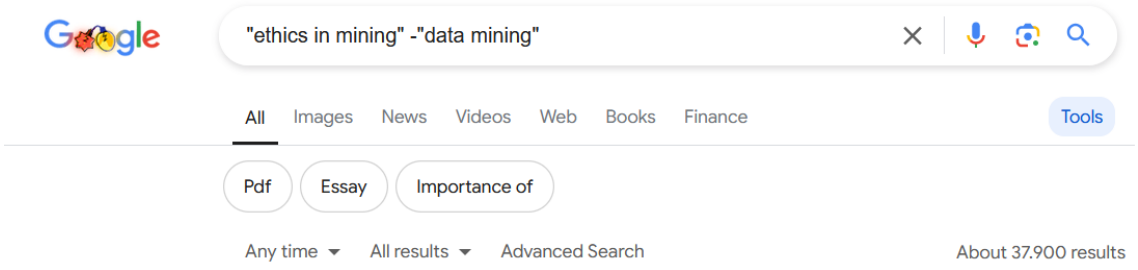

Fig. 1.1: Google Search - Ethical Mining

As is often initially assumed, this includes social and environmental responsibility and transparency in the raw material sector. Ethical mining practices aim to reconcile the increasing demand for and extraction of raw materials as well as new extraction technologies with the environment and society. Our society's digitalization, electrification, and energy transition are shifting the demand for raw materials and presenting us

with new fundamental ethical questions. From the general goal of ethics, namely to find out what can be convincingly justified as good and just, the question is posed: What is good and just for our coexistence in the context of socio-technological developments brought about by the extraction of raw materials.

1.2.6 Relativisim

Ethics reflects on and scrutinises current morals and values. It looks for good reasons to formulate commandments or prohibitions for actions that are considered ethically desirable. Now, one could argue that ideas about what constitutes good behaviour differ from society to society, for example by pointing to cultural differences. Is it possible to make an ethical judgement and refer to something good or bad in general terms without considering the particular circumstances of a community, the era in which it exists and the cultural characteristics it has developed? Is there any central moment in ethics that is non-relative and can be binding across time and epochs?

We shall first approach the answer from the other side. We know that there are different morals. Let us assume that all moral concepts are relative and that the ethical reflection and theory that are developed from them largely confirmed morality. Then nothing could be labelled unambiguously good or unambiguously bad. This idea in turn has consequences. For if, for example, "another epoch approves of the deeds and intentions of Hitler and Stalin, there is not even hypothetically an authority that can oppose this value judgement. All that remains is: some have seen atrocities in these deeds others have not."[5] One could therefore ignore it on the grounds that it is their values and as long as we are not affected, it is none of our business. If a conflict arose, there would be no basis for mutual understanding of the communities and ultimately the (militarily) strongest community enforced which moral concepts apply, and that is it.

Irrespective of the judgement that we cannot want such a world, we can also put forward theoretical arguments against a moral "anything goes" and ignoring it on the one hand and against the primitive right of the strongest on the other. Irrespective of the judgement that we cannot want such a world, we can also put forward theoretical arguments against a moral "anything goes" and ignoring it on the one hand and against the primitive right of the strongest on the other. This is because the objection of relativism only applies to the variable content of morality, for example living according to the principle of monogamy or polygamy. However, there is also an invariable formal aspect to morality or ethics, for example living according to the principle of universally

[5] Manstetten (2005) *Ma05 , p.94*

acting well. This invariable principle transcends morals and does not finally merge into a specific moral. To a certain extent, it is a search process whose driving force is the unconditional will to do good, the morality of a person. In morality and its embedded principle of freedom lies the motivation to arrive at ever better and more humane standards and, as a result, ethically better value and moral systems.

citation

From: Pieper (2017) *Pi17* , *p.42* , authors' translation

Original Quote

Was also zunächst als bloße Relativität erscheint, erweist sich bei näherem Zusehen als die aufgrund unterschiedlicher sozio-kultureller Randbedingungen voneinander abweichende Ausprägung eines Freiheitsverständnisses, das sich in gemeinsamen Basisnormen, wie Gerechtigkeit, Gleichheit, Humanität etc. artikuliert.

What initially appears to be mere relativity turns out, on closer inspection, to be the divergent manifestation of freedom due to different socio-cultural conditions, which is articulated in common basic norms such as justice, equality, humanity, etc. [...].

These formal basic norms ultimately place demands on communities of practice where they materialise and gain validity through processes of recognition. Discourse and non-violent negotiation are the means of choice here - in contrast to the enforcement of a prevailing morality by force.

In Depth

Three preconditions of ethics

From: Manstetten (2005), p 99-100 [*Ma05*], authors' translation

Original Quote

Die erste Verbindlichkeit der Ethik: Gespräch ohne Gewalt, jenseits der Macht hingeordnet auf Verständigung

Ethische Reflexion gibt keine Orientierung, die Individualisten und Fundamentalisten lassen nicht mit sich reden – ist es wirklich so? Wäre es so, dann würde sich die Frage der Moral als pure Machtfrage erweisen. ln den Zeiten der Studentenbewegung hieß es: Die herrschende Moral einer Gesellschaft ist die Moral der Herrschenden, das heißt derjenigen, die die Macht haben, ihre Moralvorstellungen anderen aufzuzwingen. Wenn sich aber unser bisheriger Eindruck bestätigen würde, dann müssten wir sagen: Es ist nicht nur faktisch so, dass Moral mit Macht durchsetzt ist, sondern es ist auch ganz in Ordnung so, wenn Moralfragen durch Macht gelöst werden - denn, wenn alle Moral relativ ist, an welche Instanz jenseits der Macht könnten wir appellieren?

Ethik besteht unter dieser Perspektive zunächst darin, sich nicht damit abzufinden, dass Moralfragen durch Macht entschieden werden. Ethik ist vielmehr die Aufforderung, sich über Fragen der Moral ohne Gewalt und jenseits der Machtverhältnisse zu verständigen, Ethik ist damit vor allen Inhalten ein Angebot zur gewaltlosen Verständigung.

Verzicht auf Gewalt, Absehen von Machtverhältnissen, Bemühen um Verständigung, das sind drei Vorbedingungen der Ethik, die selbst schon einen ethischen Charakter haben, weil sie sittliche Anforderungen an diejenigen stellen, die sich an ethischen Auseinandersetzungen beteiligen. Wer also eine bestehende Moral mit der Frage warum konfrontiert, kann seine Anfrage nur dann als ethisch geltend machen, wenn er gegenüber Andersdenkenden diese drei Vorbedingungen einzuhalten bereit ist. In der Tat lässt sich zeigen, dass keine Moralbegründung darauf verzichten kann. Damit ist schon ein nicht-relatives Moment in die Ethik eingeführt.

The first binding force of ethics: dialogue without violence, beyond power towards understanding

Ethical reflection provides no orientation, the individualists and fundamentalists do not allow themselves to be talked to - is that really the case? If it were, then the question of morality would turn out to be purely a question of power. In the days of the student movement, it was said that the prevailing morality of a society is the morality of the ruling class, i.e. of those who have the power to impose their moral concepts on others. But if our previous impression were to be confirmed, then we would have to say: not only is it the case that morality is interspersed with power, but it is also quite all right for moral issues to be resolved through power - because if all morality is relative, to what authority beyond power could we appeal?

From this perspective, ethics initially consists of not accepting that moral issues are decided by power. Rather, ethics is the call to come to an understanding on questions of morality without violence and beyond power relations. Ethics is therefore above all an offer of non-violent understanding.

Renouncing violence, refraining from power relations, endeavouring to reach an understanding - these are three preconditions of ethics, which themselves already have an ethical character because they place moral demands on those who take part in ethical disputes. Anyone who confronts an existing morality with the question of why, can only claim that his enquiry is ethical if he is prepared to comply with these three preconditions towards those follow a different line of thought. In fact, it can be shown that no moral justification can do without them. This already introduces a non-relative moment into ethics.

exercise

Task 1.5: Ethics and morals (transfer exercise)

Please critically discuss whether and to what extent mining ethics are ethics or morals from a scientific perspective.

Provide reasons for your answer.

Time to complete approx. 30 min.

1.2.7 Law

The terminological distinction between ethics and morals also touches on the notion of law. This is because the law of a community, in the sense of a state, also has the function of regulating the behaviour of the members of this community. The special feature of law compared to morality is that the norms of a legal community are laid down in binding laws. In contrast to morally binding commandments or prohibitions, legally binding commandments or prohibitions can be enforced by the state. Thereby a legally desirable behaviour can be brought about. Instead, moral behaviour is enforced through praise and disapproval, through respect and disregard for people in a community; or in the sense of morality, i.e. a person's unconditional will to do good, through their individual conscience.

Legally binding norms must be followed in order to avoid the consequences of legal sanctions. Whether the person acting is ultimately convinced of the meaningfulness and the fundamental, including moral, justification of these laws is irrelevant. Legal norms are enforceable in court, moral norms are not. For a person acting in accordance with their conscience, this can lead to problems if it is no longer acceptable for them to comply with a law that they recognise as wrong. In this sense, a person would violate applicable law and, on the basis of their moral convictions, incur the legal sentences and punishments that can be imposed by state force. Taking these considerations further, one enters the realm of civil courage or even terrorism, which will not be pursued here.

Moral values and ethical reflections play a role in the law and especially in legislation.

example

A simple example of this is the punishment for making false statement in court, which corresponds to the ethical commandment "Thou shalt not lie".

Last but not least, ethical insights and moral reflections have a strong influence on the law, especially at very fundamental levels. This is because the aforementioned human rights and the reference to human dignity, for example, arise from ethical reflection. In the words of the philosopher Jürgen Habermas, the ethically based fundamental rights provide a kind of "ethical impregnation"[6] of the constitution. Through social discourse and processes of understanding and negotiation, moral ideas and ethical insights are incorporated into the laws of a legal community and, in addition to being morally binding, become legally binding and find their way into the sphere of legal liability.

New technological and social developments, such as those brought about by digitalisation, pose a particular challenge to law and legislation. This is because the new conditions may require a reflection and adaptation of the existing understanding of the law and the regulating statutes. The fluid nature of the search for morally and ethically sound and appropriate regulations is evident at contemporary crossroads such as these.

example

Take, for example, the discussions surrounding the securing of critical raw materials in countries of the European Union: Should they mine their own rare earths and become less dependent on the world market or rather not press ahead with mining for environmental reasons?

Video

Med. 1.1: Critical raw materials

[6] Habermas (1998) *Ha98 , p.252-254* (Original Wording: "ethische Imprägnierung")

YouTube – European Parliamentary Research Service

Time to watch 3m15s

In the course of these societal search processes, so-called ethics committees or ethics councils are often set up, whose expertise is intended to advise and support legislation and whose proposals can be incorporated into legal standards.

example

In the field of critical raw materials, for example, the European Commission's High-Level Expert Group on Critical Raw Materials, for example, analyses the supply of raw materials regarding human rights

Over time, moral ideas from society, combined with ethical reflection and expertise, can find their way into legislation through the discursive debate on new developments. The fluid becomes (at least temporarily) solid. In a figurative sense, one could therefore say that the laws are something like congealed moral concepts; however, these are scrutinised and rendered fluid by new moral and ethical questions and are solidified anew in the process described.

We have pointed out many connections between ethics, morality and law. Here ethics has an important and central task. Ethics helps to reflect and justifiy what should be recognised as good and evil, right and wrong in a fundamental and resilient way. Ethics offers us a cognitive and decision-making aid for what we should do and must take responsibility for. In contrast to law and morality, it is based on a principle of freedom to which we can decide and behave as acting persons.

So why do we need ethics? It gives us guidance for our thoughts and actions on the basis of good reasons and helps us to make reflected and well-founded judgements and assessments. Basic ethical knowledge is indispensable for the new, dynamic and still unknown challenges of mining in general and for the responsible application of mining technologies in particular.

exercise

Task 1.6: Relativism, ethics, morality (knowledge exercise)
Please explain:

- What is moral relativism?
- What does the statement mean: Laws are coagulated moral ideas?
- What is ethics?
- What is the difference between or the connection between ethics and morals?
- What is the difference between law and morals?
- How can the European Commission's Expert Group of Critical Raw Materials, for example, incorporate ethical findings and moral concepts into law concerning the mining sector?

Please explain your answers.

Time to complete approx. 45 min.

1.2.8 Summary - Definition and differentiation of terms

summary

- We need a conceptual toolbox with which we can analyse and evaluate situations or upcoming challenges from an ethical perspective so that we can make decisions that are as "good" and ethically sound as possible.
- Morals can be understood as a system of values that is actually practised in a community. It is a system of order that reflects the values and meaning of a community of practice.
- Communities have morals. And morals can differ from community to community. We can see that there is not just one moral principle, but many morals.
- The professional ethics, the respective morals of a professional group, regulate in a more or less concrete way how one should behave as a member of this professional group.
- Morality refers to the particular inner quality of a person's morally relevant decisions and actions. It is the striving for goodness that has become a firm basic attitude, which utilises inner and outer freedom in order to act for good reasons.
- Ethics is the reflection on morality. While morality is a binding system of values, ethics is the examination of a given morality. This also involves the search for better morals, better reasons and better ways of living together in the community.

- The problem of relativism raises the question: Is there a central moment in ethics that is non-relative and can be binding across times and epochs? Such an invariable moment could be seen in a person's unconditional "will to be good".
- Legally binding norms must be obeyed in order to avoid the consequences of legal penalties. Whether the person acting is ultimately convinced of the meaningfulness and fundamental, including moral, justification of these laws is irrelevant for the law.

1.2.9 Knowledge test - Definition and differentiation of terms

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.


exercise

Task 1.7: Ethics, morals, professional ethics and law

How do ethics, morals, professional ethics and law differ from each other?

The solution can be found in chapters 2.2 / 2.5 / 2.7

Time to complete approx. 30 min.


exercise

Task 1.8: Moral or ethical conflict?

Discuss whether the following situation is a moral or ethical conflict. Provide reasons for your assessment.

A mining company’s health and safety officer instructs a group of new employees on the protective measures and obligations when working underground. All the workers and the health and safety officer then sign a form stating they have received full safety training. One of his colleagues notices that he abbreviates this instruction and does not address important aspects. Inadequate instruction poses a considerable risk to the workers, their colleagues, and the company’s optimal operation. Since his family and friends value personal loyalty, he wants to keep her discovery secret from her employee. Thus he accepts the signed health and safety instructions, speaks to his colleague in person, and tells him to instruct the following workers fully.

The solution can be found in chap. 2.2 / 2.5

Time to complete approx. 40 min.

exercise

Task 1.9: Moral competence

What is moral competence and why is it so important?

The solution can be found in chapter 2.4

Time to complete approx. 20 min.

exercise

Task 1.10: Ethical relativism

Describe the issue of ethical relativism.

The solution can be found in chapter 2.6

Time to complete approx. 20 min.

1.2.10 References - Definition and differentation of terms

websource

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1.3 DPE - Different points of reference for ethics

by Matthias Schmidt and Anna S. Hüncke

Last updated: 2026/02/20

This learning unit shows that there is not just one ethics, but many. Therefore, the difference between descriptive and normative (prescriptive) as well as material and formal ethics is first explained. Subsequently, different points of reference for ethics are presented. These provide criteria for what can be justified as ethically required behaviour. Finally, the function and significance of practical judgement is discussed.

Content

Content

1.3 DPE - Different points of reference for ethics
1.3.1 Preliminary remarks on different points of reference for ethics
1.3.2 Descriptive ethics versus normative ethics
1.3.3 Material versus formal ethics
1.3.4 Duty as a point of reference for ethical behaviour
1.3.5 Discourse as a point of reference for ethical behaviour
1.3.6 Utility as a point of reference for ethical behaviour
1.3.7 Virtue as a point of reference for ethical behaviour
1.3.8 Practical judgement
1.3.9 Justice as a point of reference for ethical behavior
1.3.10 Summary - Different points of reference for ethics
1.3.11 Knowledge test - Different points of reference for ethics
1.3.12 References - Different points of reference for ethics


learningobjectives

Learning objectives

After completing this learning unit, you should:

- be able to explain what normative ethics is and how it differs from descriptive ethics.
- be able to distinguish between material and formal ethics.
- know and be able to explain different points of reference and therefore criteria for ethical behaviour.
- know what practical judgement means and what it is needed for.


Outline

Outline

This learning unit is of explanatory nature. The aim is to introduce different theories of ethics. As a rule, ethical theories differ in their reference points used to determine which central criterion is used as a basis for evaluating an action as an ethically sound action. However, the fundamental difference between descriptive ethics and prescriptive or justifying (normative) ethics is clarified in advance. The distinction between formal ethics (open in content) and material ethics (predetermined in content) is also made in advance. This learning unit concludes by demonstrating the importance of practical judgement.

You will need approx. 90 minutes to work through the learning unit and approx. 150 minutes to complete the exercises.

1.3.1 Preliminary remarks on different points of reference for ethics

In the previous learning unit, we defined terms that appear in more or less every discussion about ethics. This was necessary in order to provide greater clarity and certainty when dealing with questions of ethics in mining. This is because discussions on ethics can quickly become heated and emotional. It is very easy to get into fundamental areas of our thoughts and actions in such disputes. This concerns areas in which we are confronted with our values and the values of other people. These different values can sometimes clash sharply. After all, it is about nothing less than what we should or should not do for moral reasons.

Our recognition in certain communities - or our exclusion from certain communities - is in turn linked to these moral concepts. A moral is a system of values that is actually practiced in a community and by which the members of this community orientate

and evaluate their actions. Ethics, on the other hand, is the (scientific) reflection on morality. Ethics questions morality and is therefore much more fundamental. This is also applicable for questions about the relationship between ethics and mining that are central to this course.

Different ethical points of reference can coexist, even when their analyses lead to conflicting conclusions. An ethical point of reference may be understood as a particular window through which a phenomenon is viewed. When the position of that window shifts, our perception and interpretation of the phenomenon change, without necessarily becoming incorrect. The existence of multiple perspectives, however, does not render ethical analysis arbitrary, since each point of reference requires rigorous argumentation.

In this third learning unit, different approaches and theories of ethics will therefore be outlined so that a deeper understanding of moral and ethical contexts is made possible and practical judgement in ethical questions is sensitized and can be trained.

1.3.2 Descriptive ethics versus normative ethics

Ethics questions value systems and deals with justifications for the values that apply to them. If it primarily takes a descriptive approach, i.e. takes stock and interprets, it is referred to as descriptive ethics. A descriptive approach to ethics can be used to analyse social contexts.

example

For example, you can analyse what role morality plays in our lives or you can shed light on the phenomenon of disputes over moral issues, to name just two possible aspects.

It is important that this investigation maintains a neutral stance and is therefore not itself judgemental. Descriptive ethics makes value-free statements about existing value systems and moral concepts. It therefore has more the character of an empirical study. For more information on descriptive respectively normative ethics, see Scarano[7] and von Kutschera[8].

example

If, for example, one were to analyse the values of an mining community, i.e. identify the values that guide its members and ask, for example, what role these values play for the mining community itself and for its relationship to other communities and areas of our society, then one would arrive at descriptive-ethical statements.

[7] Scarano (2002) *Sc02 , p.25-26*
[8] Kutschera (1999) *Ku99 , p.42-43*

These findings can help to better understand such groups and possibly compare them with other mining communities or even other social groups, such as doctors, bankers or professionals of the electric industry. From this, conclusions could be drawn about the compatibility of their respective values. So if - to stay with the practical example - a chip manufacturer commissions a mining company to supply a specifc raw material of suitable quality, then knowledge of the differences or overlaps between the respective value systems of the respective professionals could help to avoid misunderstandings and conflicts. However, the question of whether the values represented in a community are good or bad, whether they are desirable or despicable, cannot be answered by descriptive ethics.

There is also another type of ethics that is not neutral on moral issues but makes moral judgements and develops moral demands. This type of ethics is known as normative ethics. As a rule, when we speak of ethics, we mean precisely this type, i.e. normative ethics. Even and especially when the attribute of normativity is not explicitly mentioned. Many people intuitively associate the word ethics with a series of commandments or prohibitions.

In the broader context of ethics in relation to mining, ethics should also be understood in the sense of normative ethics, unless otherwise stated. After all, it is always about the key question "What should we do?", a question posed by the philosopher Immanuel Kant (1724 - 1804) in the 18th century. This initially very general question can become very concrete in practical situations, as the following example illustrates:


example

What should a company sustainability officer do if she discovers that her employer is not disposing of waste in accordance with Directive 2006/21/EC of the European Parliament and the Council on the management of waste from extractive industries, for example, when disposing of tailings? What should she do if she also discovers that this was made possible in the first place by a mining engineer friend from her company?

Video

Med. 1.2: What is compliance, and why is it important?

YouTube – Be Informed

Time to watch 1m10s

Maybe the company has clear internal compliance guidelines according to which this case would have to be reported. But still the company sustainability officer may find herself in a quandary. She may feel obliged towards her befriended colleague, but may also feel the need to report the recognised misconduct. She may also be worried about her job, for example if she suspects that the colleague has acted on behalf of and in agreement with the management. In such a case, her possible moral intention to report the recognised breach of duty could be curbed by her own existential fears. So what should the company sustainability officer do in such an unpleasant ethical dilemma? What is the right thing to do? What is the ethical thing to do?

Normative ethics formulates ethical commandments or prohibitions. It provides answers to the question "What should I do?". It is nothing less than a question of what is right and good behaviour. It is obvious that this is not a purely technical instruction. Ethics is not a simple instruction manual for life; it is not an algorithm for people in dilemma situations. Our pluralistic and differentiated society is too complex and interwoven for simple instructions and behavioural programmes to lead to (ethically)

good and resilient decisions and actions. This applies all the more to the mining sector, which is highly interconnected globally. Simple answers to complex questions are not very promising.[9]

1.3.3 Material versus formal ethics

The question "What should I do?" can be answered with varying degrees of concrete content. If, for example, certain commandments or prohibitions are formulated in specified terms, then we speak of material ethics. In a figurative sense, such ethics provide material instructions on what one should and should not do. Take, for example, the ten commandments of Christian ethics. Sentences such as "Thou shalt not lie!" or "Thou shalt not kill!" are material, i.e. content-filled prohibitions; they say exactly what is not to be done. This ethical requirement applies without any ifs or buts. In contrast, however, there is also a type of ethics that is less concrete in terms of content, but nevertheless just as binding. This type sets out its demands in formulae. In everyday language, most people are probably familiar with the so-called "golden rule".

definition

Golden rule In its general form, it is a saying that goes like this:

"Do not do to others what you would not want done to yourself!"

This commandment also provides an answer to the question "What should I do?". Although no formulated instructions are given, actions are fundamentally guided and arbitrariness is ruled out. This is because my actions should be determined in response to others, in reference to my fellow human beings. Instead of a generally valid formulated instruction, such as "Thou shalt not lie!" is replaced by a formula, which does, however, have a binding character. However, the formulaic nature of the golden rule leaves us a certain amount of room for manoeuvre. After all, if we ourselves thought it was appropriate to lie in a certain situation, we could use the golden rule in a similar situation to justify the fact that we could or even should lie to someone else.

example

In the above example of the sustainability officer who has discovered a serious breach of waste disposal guidelines by a colleague friend, possibly even in collusion with the management, the application of material ethics or formal ethics may well lead to different results. If, for example, the specific material ethical requirement “Thou shalt not lie!” is applied, then the sustainability officer would have to accuse her colleague in any case. Be it that she would be asked whether she knew about the breach of rules

[9] Cf. Petersen / Quandtl (2017) *PQS17 , p.142-143*

and whether she knew who was involved. Or whether she would be asked without being asked in an extended understanding of “Thou shalt not lie!” (“...and therefore bring the truth to light!”) and therefore proactively reported their discovery.

However, applying the golden rule would at least enable the sustainability officer in this situation to think independently about what she should do in the given situation. This would give her more room for thought and action. Applying the golden rule, the sustainability officer could come to the conclusion that she is covering for her colleague. After all, she herself would probably not want him to betray her if he caught her breaking the rules in her area. However, she could also come to the opposite conclusion, namely that she would deserve nothing less than to be reported to compliance if her colleague caught her breaking the rules herself. After all, a breach of the rules by a sustainability officer in her field is no trivial offense.

With regard to the golden rule, there are therefore degrees of freedom that would allow different actions, as long as they are also valid and considered necessary in relation to oneself. However, with this freedom also comes the responsibility to justify one's own actions and to take responsibility for their consequences. Last but not least, it can be assumed that a corrective is needed in order to apply the golden rule in the sense of formal ethics. A criterion for ethically appropriate or prohibited actions that goes beyond individual inclinations also appears to be necessary for formal ethics in order to prevent general arbitrariness and the justification of anything-goes. For example, the self-reflective reference that it is ethically justified to inflict pain on other people because one is "into it oneself" is unlikely to be a tenable answer to the fundamental ethical question "What should I do?". With the golden rule, we may get a little further in everyday life than with fixed, predefined commandments or prohibitions of material ethics. But the reference to oneself and thus also to one's own preferences or values as a standard for good ethical behaviour is not yet entirely convincing. Other points of reference beyond the individual seem to be necessary for ethical behaviour.


exercise

Task:

a) Consider various options for action that the sustainability officer described in the text

could take after discovering her colleague's breach of company rules.

b) What (ethical) problems could arise from each option?

c) What would you do in the place of this sustainability officer?

Please give reasons for your answers.

Time to complete approx. 20 min.

1.3.4 Duty as a point of reference for ethical behaviour

The ethics of duty, developed and founded by Immanuel Kant in the 18th century, is an ethics that is virtually devoid of interests, primal needs and instincts. For him, the point of reference for ethical behaviour is reason. He understood this to mean the ability to transcend the senses and nature. Reason can become effective in the realm of the practical, i.e. in action, and thus guide our actions in an ethical sense. This "practical reason means the ability to choose one's actions independently of sensual determinants (the drives, needs and passions, the sensations of the pleasant and unpleasant); this ability is also called will."[10] What is decisive is that, according to Kant, this will arises from reason, i.e. it is a rational will. A will to act according to ethical laws that human as a rational being imagines for themselves. In this, the rational human being differs from animals, which Kant sees as mere natural beings that follow the laws given to them by nature. "The will means nothing other than the ability and willingness not to extinguish the natural impulses, but to distance oneself from them".[11]

example

The problem with the golden rule that our sustainability officer faced above with regard to the golden rule is resolved here. This is because the injunction "Do unto others as you would have them do unto you" is given a point of reference by Kant that abstracts from the inclinations and interests of the individual person. According to Kant, the expert can only want what a rational will wants.

We can now specify the golden rule of everyday language and summarise it as follows: ‘Do not inflict on others what you cannot reasonably want!’ In the language of Kant and his ethics, this formal ethical commandment is expressed as follows: "Act only according to that maxim whereby you can at the same time will that it should become

[10] Höffe (1992) *Ho92* , *p.126* , authors’ translation

Original Quote

[Diese] praktische Vernunft bedeutet die Fähigkeit, sein Handeln unabhängig von sinnlichen Bestimmungsgründen (den Trieben, Bedürfnissen und Leidenschaften, den Empfindungen des Angenehmen und Unangenehmen) selbst zu wählen; diese Fähigkeit heißt auch Wille.

[11] Höffe (1992) *Ho92* , *p.126* , authors’ translation

Original Quote

Der Wille bedeutet nichts anderes als die Fähigkeit und Bereitschaft, die naturwüchsig vorgegebenen Impulse zwar nicht auszulöschen, aber sich von ihnen zu distanzieren

a universal law."[12] This ethical commandment is also known as the categorical imperative. The word maxim means as much as a subjective principle on which my actions are based. Like the general laws of nature, this principle should apply equally at all times and in all places - i.e. always, everywhere and for every person.[13] This sets a very strict framework for ethical behaviour and removes the argumentative basis for any arbitrariness.

example

Our sustainability officer is therefore ethically obliged to check whether what she should do in her conflict-laden situation is based on a reasonable will. Can she therefore reasonably cover for her colleague if he breaks the rules? Or is it reasonable to expose his misconduct and thus distance herself from her colleague friend, which could possibly be accompanied by feelings of betrayal towards him?

To be more precise: Is it sensible and generalizable to cover up a friendly colleague's breach of the rules with regard to corporate environmental protection, or do we have more of a duty to protect the environment as a principle of action? Perhaps even with a view to the many anonymous people who have a legitimate claim to a natural environment that is as intact as possible.

Duty vs. obligations

An ethic such as Kant's, which develops and prescribes generally binding principles, is also referred to as duty ethics. It does not specify exactly how the duty is to be fulfilled. Nevertheless, an action can only be considered ethically good in the sense of duty ethics if it is in accordance with duty. Any behaviour contrary to duty would be unethical.[14] From this binding nature, an ethic of duty develops a strong normative force.

In the example of the sustainability officer of a mining company, her personal friendship with a colleague who has committed a breach of the rules clashes with more fundamental responsibilities towards the environment. Nevertheless, one could say that other people are also affected by the environmental impact (at least in principle and indirectly). Our sustainability officer's consideration of the ethically required options for action therefore goes beyond her purely personal obligation towards her colleague.

[12] Kant (1993) *Ka93 , p.51* , authors' translation

Original Quote

Handle so, als ob die Maxime deiner Handlung durch deinen Willen zum allgemeinen Naturgesetze werden sollte.

[13] Cf. Höffe (1992) *Ho92 , p.137*

[14] Cf. von Kutschera (1999) *Ku99 , p.71*

With the question already raised above in Kant's sense of what would be reasonable to do, one can contrast the sustainability officer's friendship with her colleague, which is perceived as an (moral) obligation, with an ethical duty that is linked to reason.

Supplementary digression and example

It becomes problematic when two or more duties collide with each other. As Kant argued and following the Constitution of the Federal Republic of Germany, human dignity is the highest protected good to which other duties of protection relate. However it is not always easy to weigh up how this protection can be guaranteed, especially in difficult and dynamic situations.

Take, for example, the political discussions in 2020 and 2021, which were dominated by the coronavirus situation. It is true that politicians have a duty to uphold and respect fundamental rights. Nevertheless, restrictions on rights were necessary at times in order to guide the country through this immense crisis. For example, a balance had to be struck between restricting freedoms (travel bans, curfews), economic consequences and health risks. For more details, see Schmid Noerr[15], also with reference to Kant.

The extent to which some people felt restricted and sometimes felt their dignity was violated is shown by the anti-corona demonstrations and concerns about a general mandatory vaccination.

Not to mention the triage issue faced by doctors, who are obliged to look after people's health, but in some cases had to decide who to save the lives of and who not to save in the face of a shortage of intensive care beds. This meant that patients had to be reified and were inevitably turned into a calculation factor.[16] However, Kant's ethics of duty is based on the fact that the value of a human being as a rational being goes beyond a mere calculation factor, a price: “Whatever has a price can be replaced by something else as its equivalent; on the other hand, whatever is above all price, and therefore admits of no equivalent, has a dignity."[17] The fact that a human being is always also an end in itself endows him with dignity. But human dignity must not be offset.

[15] Schmid Noerr (2020) *Sc20*
[16] Cf. in more detail Zimmermann (2020) *Zi20*
[17] Kant (1993) *Ka93* , *p.68* , authors’ translation

Original Quote

Was einen Preis hat, an dessen Stelle kann auch etwas anderes, als Äquivalent, gesetzt werden; was dagegen über allen Preis erhaben ist, mithin kein Äquivalent verstattet, das hat eine Würde.

1.3.5 Discourse as a point of reference for ethical behaviour

An ethic of duty based on the principle of reason can be very helpful in principle. However, it is also confronted with problems, especially when many values clash and claim validity. This becomes obvious in the societal debates and discourses on a wide variety of controversial topics. It is therefore worth taking a brief look at contemporary approaches on discourse ethics, one of the best-known representatives of which is Jürgen Habermas (*1929). This type of ethics attaches structuring weight to argumentation in pluralistic, non-traditional and modern societies.[18] However, discourse ethics is not about techniques on how to properly engage in a discourse in order to be justified in the end. Rather - as with Kant - it is about "giving an answer to the question of what we should orientate our actions towards in every situation"[19] In this sense, discourse ethics can be understood as a modification of Kant's ethics, whereby it also constitutes an ethics of duty.

Instead of reason (as with Kant), in discourse ethics the rational consent of all participants in an unconstrained discourse free of domination takes precedence. Ethical action then means nothing less than "that one should always act in such a way that all rational beings (and especially all those potentially affected by the behaviour) could agree to the chosen principle of action in an unlimited argumentative discourse".[20] It is about an argumentatively mediated understanding of norms and courses of action that all participants can reasonably recognise.[21] This means that discourse ethics is based on an ideal discourse and ideal conditions; a prerequisite that cannot be found in practice. Discourse ethics can provide valuable impulses for analysing the ethical question "What should I do?".

example

In order to shed a light on her problematic situation, our sustainability officer would have to consider, from the perspective of discourse ethics, which of her options for action can be considered acceptable for all those affected, but also, in principle, for all people. She would therefore also have to consider the arguments of those people who are affected by the potential environmental damage caused by the colleague who

[18] Cf. Lutz-Bachmann (2019) *Lu19*

[19] Werner (2002) *We02* , *p.140* , authors' translation

Original Quote

[...] eine Antwort auf die Frage zu geben, woran wir unser Handeln überhaupt, in jeder Situation, orientieren sollen

[20] Werner (2002) *We02* , *p.141* , authors' translation

Original Quote

[...] stets so zu handeln, dass alle Vernunftwesen (und zumal alle von der Handlungsweise potenziell Betroffenen) dem jeweils gewählten Handlungsgrundsatz in einem unbegrenzten argumentativen Diskurs zustimmen könnten

[21] Cf. Lutz-Bachmann (2019) *Lu19*

disregarded the relevant regulations. And even if the arguments of this very colleague should be heard, it is difficult to imagine that the cover-up of his behavior would meet with general approval in a (theoretically) domination-free and unrestrained course without any influence of power.

1.3.6 Utility as a point of reference for ethical behaviour

Utilitarianism is a widespread ethic originating from the Anglo-Saxon world, whose classic representatives include the English philosophers Jeremy Bentham (1748 - 1832) and John Stuart Mill (1806 - 1873).

Ethics of this type focus on the consequences of actions, which is why they can also be described as consequentialist ethics. The criterion for ethical behaviour is the greatest possible benefit for the greatest possible number of people.[22] The basic idea behind this stems from the anthropological assumption that humans strive to increase their pleasure and avoid suffering. This initially sounds like an approach that seems to follow highly selfish motives.

example

For the sustainability officer in our example, this could lead to the conclusion that she is covering up for her colleague and maintaining harmony and friendship with him.

But it is not as simple as. Utilitarian ethics attach great importance to the non-partisan nature of the moral standpoint. It is about the equal promotion of the interests of all as a criterion for what is morally right. It is not about the promotion of self-interest.[23] This means: "Action is moral if it has the most beneficial consequences for all those affected, i.e. if the consequences of action are that they result in a maximum of pleasure and a minimum of suffering."[24] The assessment of consequences should be impartial and disregard all special sympathies and loyalties.

Our officer must therefore ignore her personal relationship with her colleague and adopt a neutral standpoint. Her actions should be orientated towards the greatest benefit for all.

[22] Cf. Pieper (2017) *Pi17* , *p.238*
[23] Cf. Nida-Rümelin (1996) *Ni96* , *p.8*
[24] Cf. Pieper (2017) *Pi17* , *p.239* , authors' translation

Original Quote

Eine Handlung ist dann moralisch, wenn sie die nützlichsten Folgen für alle Betroffenen hat, d. h., wenn die Folgen einer Handlung darin bestehen, dass sie ein Maximum an Freude und ein Minimum an Leid hervorbringt.

Consequentialist ethics is focussed on a goal and is oriented towards the consequences of an action in order to assess whether it is ethically good or bad. In a specific ethical conflict situation, it is therefore necessary to examine which ethically relevant consequences would result from my options for action. The option that offers the greatest benefit is the one that is required. This gives rise to new problems that need to be clarified. For one thing, the consequences include "not only the outcomes that occur later, but also the outcomes of an action that occur simultaneously, as well as the action itself and its circumstances".[25] Furthermore, it is about the predictable outcomes, not the outcomes that actually occur - as the former cannot be predicted exactly.

The normative element of utilitarian ethics is the strict focus on the benefit, i.e. the positive outcomes that are expected in the foreseeable future. From this perspective, our actions must be guided by this alone. But what exactly constitutes this benefit? What is of such great value that it can be set as a goal and benchmark? Consequently, another element is necessary, a theory of value that can answer precisely this question. The aforementioned pleasure or well-being can represent such a value. But this still does not say exactly what it can mean in concrete terms and what constitutes it. These are formal determinants that must be filled with the concrete content of values. The extent of this content (of "pleasure minus suffering") must ultimately be added up. This is in order to determine the total benefit for all that results from the consequences of an ethically relevant action. "An action is considered right if its consequences are optimal."[26] It is obvious that such an optimisation process could also lead to further conflicts. For what if the optimal outcomes can only be achieved through reprehensible actions? What if the colleague of the sustainability officer in our example deliberately broke the rules because, based on his own professional expertise, he knows that his breach will result in significantly less environmental impact than if he had blindly obeyed the rules and regulations?


exercise

Task 1.13: Maximising benefits (reflection exercise)

Think about an example from raw material mining in which it might be ethically necessary from a utilitarian point of view to carry out a "bad" action in order to maximise the benefit for everyone involved.

[25] Birnbacher (2002) *Bi02* , *p.95* , authors' translation

Original Quote

[...] nicht nur die zeitlich später eintretenden Wirkungen, sondern auch die gleichzeitig eintretenden Wirkungen einer Handlung sowie die Handlung und ihre Umstände selbst

[26] Cf. Nida-Rümelin (1996) *Ni96* , *p.9* , authors' translation

Original Quote

Eine Handlung gilt als richtig, wenn ihre Folgen optimal sind.

> Give reasons for your considerations.
>
> Time to complete approx. 20 min.

1.3.7 Virtue as a point of reference for ethical behaviour

Beyond basic duties and purpose-oriented maximisation of benefits as points of reference for ethical action, virtue ethics are also repeatedly cited. The word virtue stands for the disposition of a person's character that leads to a way of life that enables an individually and collectively good life. In most cases, reference is made to the Greek philosopher Aristotle, who lived in the 4th century BC . His ideas still have an impact today. For him, the question of the good life took centre stage, resulting in the ethical question "How should I live?". Virtue ethics therefore does not primarily focus on the evaluation of individual actions, but on the evaluation of the acting person as a whole. [27]

In the Aristotelian sense, virtue ethics represents an understanding that emphasises a certain wisdom of life and avoids extremes. It is about finding the rational balance of a matter, as too much or too little can be harmful. The virtues necessary for this can be learnt and should be at the service of the general public. They have to be moulded and practised like skills.[28] The virtuous person is characterised by the fact that they know how to make the right decisions in relevant situations. In modern adaptations of ancient virtue ethics, virtues represent the collective good that must be applied individually. The respective historical context in which we live is also important. It is characterised in how we link our different actions according to established role models. The question of the right action for the sustainability officer who discovers that her colleague is violating environmental regulations also involves a certain understanding of her role in terms of virtue ethics. This is based on the expectations of her profession and must also be in line with her own ethical motives. Situational and personal aspects can play a greater role in virtue ethics than in duty ethics and utilitarian ethics. This applies both with regard to the community and with regard to what a virtuous person would do.

Situational and personal aspects can be more effective in virtue ethics than in duty ethics and utilitarian ethics. This is albeit with regard to the community and with regard to what a virtuous person would do.[29][30]

[27] Cf. Rapp (2002) *Ra02* , *p.79*
[28] Cf. Aristotle (1999) *Ar99*
[29] Cf. Pieper (2017) *Pi17* , *p.244*

1.3.8 Practical judgement

As a look at the few ethics presented in this learning unit shows, it is not easy to find out which specific actions in a given situation are ethically right or wrong. If we want to move beyond quick, largely unquestioned moral judgements, it is necessary to reflect on ethical reasoning. As we have seen, ethical demands often remain vague in terms of content. They can provide guidance, but often they remain vague. They need to be implemented in a situation applicable way. In order to arrive at ethically appropriate decisions and actions, we need an ability that can be described as practical judgement. This ability to judge enables us to apply and reflect on ethical norms in concrete situations. But also if norms compete or even collide with each other, it is necessary to assess their appropriateness in the given situation.

Especially in a modern, pluralistic society, in which there is a multitude of values and norms, practical judgment is of central importance. This social plurality is reinforced by global interdependencies and networking, as can be found not least in the commodities sector.

A profound practical power of judgment can help to reflect on various moral principles and ethical demands in the field of tension between individual and general perspectives. And it can help to arrive at ethically legitimate, well-founded judgments and actions. “Moral competence, which is documented in practical judgment, is the existential basis for thriving interpersonal relationships that can be described as “humane” in an empathic sense.”[31]

example

With regard to our example of sustainability officer it can therefore be stated that there can probably be no one hundred percent recommendation for her on the basis of a single, all-encompassing, binding ethical principle. The ethical reasons for her “ethically desirable” behavior can also be very different.

Nevertheless, our practical ability to judge can be sensitised, sharpened and trained using the example and reflection of the ethics presented. The more specialised certain fields are in which moral conflicts and controversial practices of norms can arise, the more important it can be that specialist knowledge must also be included in ethical reflection in order to arrive at viable decisions. General ethics then becomes applied ethics, which is the subject of the next learning unit.

[30] Cf. Rapp (2002) *Ra02 , p.79*
[31] Cf. Pieper (2017) *Pi17 , p.89*

exercise

Task 1.14: Moral judgements (transfer exercise)

Discuss the following quote against the background of duty ethics, utilitarianism and virtue ethics.

"A consequentialist appears [...] as a highly unreliable partner, because his conviction demands that he does not adhere to certain rules without ifs and buts, but examines what is best on a case-by-case basis."[32]

Franz von Kutschera

Time to complete approx. 45 min.

1.3.9 Justice as a point of reference for ethical behavior

by Sören E. Schuster

Last updated: 2025/10/07

Plato: Task for society

The notion of justice is central to ethics and, as such, rooted in a long history of philosophy. The Greek philosopher Plato (428/427-347/348 BC), for example, conceptualized justice as harmony between the different classes of his ideal state in the Republic. If each class were enabled to „do their own work"[33] and fulfill their task for society without encroaching into the sphere of the others, justice would result. Plato's political idea of justice directly challenges the notion that justice simply represents the right of the stronger, a belief influenced by the circumstance that people or classes in power often establish notions of justice that serve their own interests, whether in ancient Greece or today.

Aristotle: Particular justice and general justice

Plato's student Aristotle (384-322 BC) discusses justice in two ways in his Nicomachean Ethics (2009, Book V): particular justice and general justice, which encompasses all virtues realized in social life. Particular justice divides into two forms. The first involves just distribution of goods according to merit, while in ancient Greece, "merit"

[32] Kutschera (1999) *Ku99* , *p.79* , authors' translation

Original Quote

Ein Konsequentialist erscheint [...] als ein höchst unzuverlässiger Partner, denn seine Überzeugung fordert von ihm, daß er sich gerade nicht ohne Wenn und Aber an gewisse Regeln hält, sondern von Fall zu Fall prüft, was das Beste ist.

[33] Plato (2004) *Pl04* , *p.434c*

often meant social rank rather than measurable input like labor. The second, corrective justice, concerns fairness in exchanges, ensuring equivalence regardless of status, such as in contracts or transactions. Like other virtues in virtue ethics, justice is about finding a mean between extremes. Aristotle's general justice aims at realizing all virtues socially; thus, in his Politics, he defines it as "an ordering of the political association"[34]

example

While distributive justice evaluates whether the profits of a mining project are fairly allocated among stakeholders, corrective justice requires the mining company to compensate stakeholders who have been harmed.

Hobbes: Social contract vs Kant: universal laws

At the dawn of modernity, when Western philosophy began to emancipate itself from religious authority, Thomas Hobbes (1588-1679) developed a notion of justice based on the view that morality arises from a social contract. To escape the violent state of nature, individuals agree to delegate ultimate power to a sovereign who ensures peace: "But when a Covenant is made, then to break it is Unjust [...]. And whatsoever is not Unjust, is Just".[35] In contrast, Immanuel Kant's deontological ethics holds that justice cannot rest on agreements securing order or peace but must be grounded in universal human duties. Through the categorical imperative, Kant links justice to rational, universal laws valid for all moral subjects. Thus, although Kant influenced modern social contract theory, he is not its traditional advocate.

Video

[34] Aristotle (1999) *Ar99* , *p.1253a*
[35] Hobbes (2003) *Ho03* , *p.100*

Med. 1.3: Contractarianism Crash Course Philosophy #37

YouTube – CrashCourse

Time to watch 9m31s

Rawls: Individual liberties

One of the most influential 20th-century philosophers, John Rawls (1921-2002), drew on Kant in developing his Theory of Justice, a cornerstone of contemporary debate. Rawls critiques utilitarianism for risking neglect of minorities for the majority's benefit. He reshaped social contract theory into a hypothetical scenario where rational citizens, behind a "veil of ignorance"[36], do not know their social position. From this original position, society's foundations are established according to two principles:

"First: Each person has an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme for others. Second: Social and economic inequalities are arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all".[37]

While utilitarianism might permit inequalities that disadvantage some individuals if doing so increases overall happiness, Rawls' second principle rejects this. According to Rawls, economic inequalities are only justified if they benefit the least advantaged members of society. For example, a business owner may accumulate wealth, but this is only acceptable if that wealth also leads to improvements for the least well-off, such as through taxation, job creation, or positive economic impacts. Rather than basing justice on individual preferences or overall utility, Rawls – in a similar way to Kant – grounds his theory in normative principles aimed at protecting individual liberties while promoting a fair and just society.

exercise

Task 1.15: Justice as a point of reference for ethical behavior

A mining company has received a license to operate in a local area through an agreement with the regional government. However, growing numbers of local residents are protesting the project, claiming it is unjust and harmful to their

[36] Rawls (1999) *Ra99 , p.118*
[37] Rawls (1999) *Ra99 , p.53*

community. The head of the company defends the project as just, arguing that it is based on a legitimate, factual agreement with the authorities. Using John Rawls' theory of justice, analyze why other parties might view the project as unjust.

Time to complete approx. 45 min.

Sen: Real capabilities

More recently, Rawls' theory has faced criticism from libertarian perspectives emphasizing voluntary exchanges and entitlements, echoing Aristotle's commutative justice. The Indian economist and philosopher Amartya Sen criticized Rawls for focusing on distributing primary goods rather than people's real capabilities to use them. Sen developed the capability approach, emphasizing individuals' effective freedoms to achieve valuable lives. Since then, justice theory has broadened to include especially feminist, ecological, and postcolonial critiques.

1.3.10 Summary - Different points of reference for ethics


summary

- Descriptive ethics makes value-free statements about existing value systems and moral concepts and thus has more the character of an empirical study.
- However, there is also another type of ethics that is not neutral on moral issues, but makes moral judgements and develops moral demands. This type of ethics is known as normative ethics.
- Normative ethics formulates ethical commandments or prohibitions. It provides answers to the question "What should I do?". It is about nothing less than the question of right and good behaviour.
- Our pluralistic and differentiated society is too complex and interwoven so that simple instructions and behavioural programmes could lead to (ethically) good and resilient decisions and actions. Simple answers to complex questions are not very promising.
- If, for example, certain commandments or prohibitions are fixed in terms of content, then we speak of material ethics. One example are the Christian ten commandments.

- Formal ethics set out their requirements in formulae. One example is the so-called Golden Rule. Although no detailed instructions are given, actions are guided essentially and arbitrariness is ruled out. This is because actions should be determined in relation to others, in reference to my fellow human beings.
- An ethic such as Kant's, which develops and prescribes generally binding principles, is also referred to as an ethic of duty. It is true that it is not specified exactly how the duty is to be fulfilled. Nevertheless, an action can only be considered ethically good in the sense of duty ethics if it is in accordance with duty.
- Discourse ethics requires the rational consent of all participants in an informal discourse free of domination. An action is ethically imperative if all participants in the discourse would agree with it. However, this can only be the case in an ideal world.
- Consequentialist, benefit-orientated ethics is focused on a goal and is oriented towards the outcomes of an action in order to assess whether it is ethically good or bad. But how should the sought-after benefit be determined?
- Virtue ethics does not primarily focus on the evaluation of individual actions, but on the evaluation of the acting person as a whole. Virtue can be understood as a person's disposition of character.
- Practical judgement enables us to apply and reflect on ethical norms in concrete situations. This is particularly important in the case of competing norms.

1.3.11 Knowledge test - Different points of reference for ethics

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.


exercise

Task 1.16: Normative and descriptive ethics

Explain what normative ethics is and how it differs from descriptive ethics.

The solution can be found in chapter 3.2

Time to complete approx. 20 min.

exercise

Task 1.17: Material and formal ethics

What is the difference between material ethics and formal ethics?

The solution can be found in chapter 3.3

Time to complete approx. 20 min.

exercise

Task 1.18: Points of reference and criteria for ethical behaviour

Name and explain the different points of reference and criteria for ethical behaviour.

The solution can be found in chapters 3.4 to 3.7

Time to complete approx. 40 min.

exercise

Task 1.19: Practical judgement

What does practical judgement mean and what is it needed for?

The solution can be found in chapter 3.8

Time to complete approx. 20 min.

1.3.12 References - Different points of reference for ethics

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1.4 DCC - Differentiation in complex reference contexts

by Anna S. Hüncke, Matthias Schmidt and Nina Küpper

Last updated: 2025/03/26

This learning unit examines the nature and use of ethics in applied contexts and areas. We speak of applied ethics when fundamental ethical theories are applied to specific situations. If knowledge that is specific for a particular area is included as well, we refer to areas of applied ethics or applied area-specific ethics. An example of this is mining ethics.

Content

Content

1.4 DCC - Differentiation in complex reference contexts
1.4.1 Preliminary remarks on differentiation in complex reference contexts
1.4.2 Applied ethics
1.4.3 Area ethics
1.4.4 Summary - Differentiation in complex reference contexts
1.4.5 Knowledge test - Differentiation in complex reference contexts
1.4.6 References - Differentiation in complex reference contexts

learningobjectives

Learning objectives

After working through this learning unit, you should be able to

- explain what is meant by applied ethics and areas of applied ethics.
- explain the function of applied ethics and areas of applied ethics.
- list some areas of applied ethics and explain why they also integrate expert knowledge.
- explain why areas of applied ethics cannot be clearly distinguished from one another.

Outline

Outline

This learning unit begins by explaining the importance of applied ethics, which, in contrast to classical ethical theories, refers to specific situations and cases of conflict in practice. It thus responds to problems of orientation faced in the everyday world. The concept of applied area-specific ethics is then introduced. They are practice-oriented, but they combine ethical knowledge with area-specific expertise in order to arrive at a well-founded assessment of an issue. Finally, it is discussed that applied area-specific ethics cannot be clearly differentiated from one another. This is particularly relevant because mining has overlaps with different areas of society.

You will need approx. 60 minutes to work through the learning unit and approx. 60 minutes to complete the exercises.

1.4.1 Preliminary remarks on differentiation in complex reference contexts

Since around the middle of the last century, so-called applied ethics have increasingly developed and established themselves. As the term suggests, these ethics have a particular focus on concrete practice in a lived reality. However, this is by no means to say that classical theoretical ethics are becoming obsolete. We have exemplary explored four of these approaches in the previous learning unit. On the contrary, ethics have always had a highly practical relevance. The questions of the good life and ethically appropriate behaviour have always been at the centre of ethical reflection. This is what normative ethical theories are about when they substantiate their own moral principle (e.g. the good, reasonable will or the maximisation of happiness or pleasure). It is then up to the acting person - as we saw in the example of the sustainability specialist from the learning unit 3 in the chapter "Descriptive ethics versus normative ethics" - to reflect on and assess these principles in given situations in order to act appropriately. In this respect, theoretical ethics are highly practice-relevant and important in shaping our human interactions.

Applied ethics, as we will get to know in this learning unit, and the theoretical ethics we are already familiar with are not two clearly separate matters. Ultimately, they are always related to each other. They open up everyday practice from different perspectives and with different emphases, which can result in specific practical insights and possibilities to act in different areas.[38]

[38] Cf. Bayertz (1994) *Ba94 , p.8*

1.4.2 Applied ethics

Applied ethics is a very complex endeavour that involves combining theoretical reflections on ethics with practical questions of orientation. Basic concepts and principles of ethics as well as the inner quality of a moral action (morality) are reflected in the context of given circumstances. They are linked with specific questions and requirements of human practice in such a way that a specific form of "own" ethics can emerge in an applied setting. Underlying this is an increasing lack of orientation in modern societies. "Over long stretches of the history of ethics there has been a great consistency with regard to concrete assessments of good behaviour".[39] However, this is no longer the case today due to the speed and dynamics of social and technical developments.

Procedures for the advisory support of political decision-making and the creation of social consensus are also frequently labelled as ethical. A prominent example of this is the German Ethics Council, which is appointed by both the German Bundestag and the Federal Government.

The mandate of the German Ethics Council is defined in §2 EthRG (Ethics Council Act) as follows:

citation

From: Gesetz zur Einrichtung des Deutschen Ethikrats (2007) *Et07* , authors' translation

Original Quote

Der Deutsche Ethikrat verfolgt die ethischen, gesellschaftlichen, naturwissenschaftlichen, medizinischen und rechtlichen Fragen sowie die voraussichtlichen Folgen für Individuum und Gesellschaft, die sich im Zusammenhang mit der Forschung und den Entwicklungen insbesondere auf dem Gebiet der Lebenswissenschaften und ihrer Anwendung auf den Menschen ergeben.

The German Ethics Council shall monitor the ethical, social, scientific, medical and legal issues and the likely consequences for individuals and society that arise in connection with research and developments, particularly in the field of life sciences and their application to humans.

According to its own terming, the German Ethics Council deals "with the great questions of life. With its opinions and recommendations, it provides orientation for society and politics."[40]

[39] Düwell (2002) *Du02* , *p.244*
[40] Deutscher Ethikrat (2025) *Et25*

With regard to the advisory and orientation function of ethics councils or ethics committees, ethics can also be understood as an initiative at the interface between science and society. This gives it a kind of political function. After all, politics is not least about balancing the different interests pursued by different actors with different levels of power. It is true that the core business of ethics is the critical scrutiny of moral arguments and demands. However, the more it contributes to the formation of public opinion and the creation of societal consensus, the more it enters the original realm of politics.[41]

The German Ethics Council also deals with topics that can affect the mining industry. One such subjects is societies' challenges regarding climate change and climate justice. For instance, the council advices that "further growth of consumption and resource use in industrialised countries"[42] has to be critically assessed with regard to the global south and that "alternatives" have to be found for the "exhaustion of resources".[43] Further the sector is important in "the development of technologies to achieve 'negative emissions'".[44] Not least, this is also about people's current way of life, which is challenged by the combination of the world's resources, its changing climate and modern technologies. From a profound perspective, it is about nothing less than human dignity, which must be recognised and protected under these conditions.

The close interweaving of normative questions with findings and experiences from certain contexts of human interaction does not only increase the content-related complexity of applied ethical reflection. It also leads to a pluralisation of the ethical approaches and basic attitudes of actors concerned. After all, ethics councils or committees are not homogeneous groups, but are made up of experts from interdisciplinary fields and professions. This makes it difficult, if not impossible in principle, to impose a single moral principle from theoretical ethics that could then be applied to a specific case. Instead, consensus is of particular importance.

Especially when it comes to fundamental convictions, i.e. principles, consensus building is generally not possible without friction. Therefore, consensus is necessarily preceded by discourse. These involve illuminating and analysing ethical problems that have a highly practical relevance. In disputes between conflicting principles, fundamental values clash that are sometimes irreconcilable.

[41] Cf. Düwell (2002) *Du02 , p.245*
[42] Deutscher Ethikrat (2024, March 13) *Et24 , p.10*
[43] Deutscher Ethikrat (2024, March 13) *Et24 , p.15*
[44] Deutscher Ethikrat (2024, March 13) *Et24 , p.15*

example

Take, for example, current discussions about active euthanasia on demand, as exemplified in the feature film "Playing God" based on Ferdinand von Schirach.[45] It presents the case of a 78-year-old healthy man's wish to die before the German Ethics Council.

citation

From: IMDB (2024) “The man wants to put an end to his life. However, this should not be done abroad, but quite legally with the help of his family doctor. The family doctor is personally convinced that it is out of the question to get his elderly but healthy patient a fatal drug. The patient’s case is exemplary discussed before the German Ethics Council. The disputed question here is not which forms of euthanasia are exempt from punishment for doctors, but rather whether doctors have to meet the patient's wish of being tired of life - whether young, old, healthy or sick. One of the Ethics Council members asks the experts and lets the various experts have their say. The constitutional lawyer (...), the patient’s lawyer, (...) a church leader and the head of the Medical Association have different, partly opposing opinions. In the end, the chairperson of the Ethics Council addresses the audience directly: Should the 78 year- old man be given the deadly preparation to take his own life in a self-determined manner?”

Following the broadcast of the programme in November 2020, viewers were asked to vote on whether the man who wanted to die should receive the necessary drug or not. The topic was continued in a subsequent talk show, which can certainly be interpreted as an element of the factual societal discourse on this topic.

In a fiction film about an exemplary ethical discussion, you can leave the ending open. You don't have to decide. And the audience's vote is an opinion without consequences. In concrete situations, however, uncomfortable decisions cannot usually be simply sat out. This is especially the case when political decisions are imminent. Laws have to be formulated and passed to respond to ethically conflicting challenges at the interface between what is technically feasible and what is ethically imperative. Furthermore, it cannot be assumed that all the legitimate interests of those affected can be fully recognised, understood and taken into account. In this respect, ethics has the function of "addressing the undecidable and deciding in full awareness of the paradox"[46] in the light of local and situational circumstances. Ultimately, democratically legitimised political compromises are necessary in order to stay capable to take action. For "It is

[45] Kraume (2020) *Kr20*

[46] Baecker (2018) *Ba18* , *p.211* , authors’ translation

Original Quote

[...] das Unentscheidbare zu adressieren und im vollen Bewusstsein der Paradoxie zu entscheiden.

indisputable that when it comes to genuine collisions of principles, "smooth" solutions are by definition impossible. [...] Without a decision, there can therefore be no way out of the conflict."[47]

It can now be critically argued that a factually achieved consensus can be problematic. This is insofar as its presumed correctness that corresponds with the convictions of some discourse participants does not necessarily withstand ethical scrutiny. This would only be theoretically the case in an ideal discourse without power structures and domination.[48] In practice, such a purely theoretical situation does not exist. In other words: Compromises from concrete ethical discourses can incorporate positions that may themselves be unethical. In order to expose such positions and counter them with arguments, a thorough examination of ethics is indispensable.

The task of applied ethics is to respond to modern society's problem of orientation. Rapid social change and the technical innovations including extraction of (critical) raw materials and the recultivation of mining sites require a reflective approach and adaptation of ethical assessments to the respective new situation. However, such an adjustment should not (only) be understood as a top-down process in which a given ethical norm is applied to a specific case. Rather, by combining experience and expert knowledge from different areas with various ethical theories, an updating and shifting of norms and principles also takes place. Understood in this way, applied ethics is itself standardising and normative on its own. Depending on the respective context of action, more or less independent and different areas of applied ethics can emerge.

1.4.3 Area ethics

This kind of ethics could be described as a very specific part of applied ethics. Here an area refers to a more or less clearly definable sphere of human practice that raises moral problems and questions. Such area-specific problems result from the specific functional context, taking into account empirical, i.e. concrete circumstances. Although general conclusions can certainly be drawn from the known theoretical ethics for a specific situation, it is still necessary to reflect on the thematic contexts and the area-specific level of knowledge in order to arrive at a qualified judgement of a moral issue in a specific lived reality. For more detailed information on this, see Bayertz[49], Nida-Rümelin[50] and Düwell[51].

[47] Bayertz (1994) *Ba94* , *p.33* , authors' translation

Original Quote

Unbestreitbar ist: Wenn es sich um echte Prinzipienkollisionen handelt, sind »glatte« Lösungen per definitionem unmöglich. […] Ohne Entscheidung kann es daher keinen Weg aus dem Konflikt geben.

[48] Cf. learning unit DPE, chapter "Discourse as a point of reference for ethical behaviour"

example

The terms bioethics, genetic ethics, medical ethics, business ethics, environmental ethics, corporate ethics or technology ethics, to name just a few. Recently, the term "ethics" has been used increasingly in connection with "mining".

After this (incomplete) list of areas of applied ethics, it should be immediately obvious that each of these area ethics has to negotiate specific moral problems. For this specialised knowledge is indispensable. By no means do areas of applied ethics lead to a contamination of pure ethics, but rather an interdisciplinary enrichment through which ethical reflection can be made fruitful for the area-specific case.

Different areas ethics can overlap depending on how complex a morally challenging issue is.

example

The recent violent conflicts in the Middle East and between Russia and Ukraine paired with questions of climate change, for example, directly raise questions of resource security vis-à-vis environmental sustainability, such as when it comes to extracting critical raw materials (for renewables) or protecting a natural habitat with a huge biodiversity in one's home country.

This current constellation also provides learning lessons: How can resources that are scarce on the world market be used in a more sustainable manner? What spin-offs does this hold for the reduction of CO2-emissions?

Last but not least, the climate crisis paired with conflicts concern the realm of political ethics. This particular ethics takes the overall societal dimension into account. How should ethical goods (e.g. biodiversity or peace) be weighed against economic goods (e.g. economic security) in order to be perceived as fair and legitimate?

[49] Bayertz (1994) *Ba94 , p.30*
[50] Nida-Rümelin (1996) *Ni96 , p.63-65*
[51] Düwell (2002) *Du02 , p.245*

Video

Med. 1.4: Causes and Effects of Climate Change

YouTube – National Geographic

Time to watch 1m4s

The example of the climate crisis as well as of violent conflicts show that certain phenomena can fall into different areas. However, by combining ethical expertise together with area-specific expertise challenges can arise. For each area addresses the shared problem with specific terms of a central significance in this area. However, the example also shows that not all areas can always be clearly distinguished from one another concerning the relevance a phenomenon has for them. Furthermore, depending on the issue concerned, areas may merge and cannot be considered in isolation from one another.

Ethical questions of mining do not only concern a particular area of applied ethics but affect various parts of the world we live in such as the natural habitat, the political and the technological sphere, public health or the economy to name but a few.

Questions must be asked about mining procedures and their repercussions from an ethical, philosophy of science's, anthropological and social perspective: For example, the Rhenish lignite mining area in Germany of which the Open Cast Mine of Hambach forms part with its extraction of lignite raises many questions concerning the lives

of local residents, impacts for the environment, the supply with raw materials, job security and safety, understandings of sustainability, and how this affects established criteria of knowledge and truth over time.

Video

Med. 1.5: Hambacher Forest, Germany - Earth Timelapse

YouTube – Google Earth

Time to watch 37s

websource

Further reading:

Lottermoser, Bernd G. / Sieger, Johannes / Tost, Michael (2024). Sustainability in Mining. Vol. I.

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exercise

Task 1.20: Business ethics (knowledge exercise)

- Would you say that mining forms a community of practice whose members share common values and a common purpose? If so, which ones?
- Do you know any taboos that you assume the members of the mining community (more or less) share? What are they? What are the reasons for these taboos?

Time to complete approx. 30 min.

1.4.4 Summary - Differentiation in complex reference contexts


summary

- In applied ethics, theoretical reflections on ethics are combined with practical questions of orientation.
- The task of applied ethics is to react to the problems of orientation in modern society.
- Basic concepts and principles of ethics and morality are reflected in the context of given circumstances.
- Due to the speed and dynamics of social and technical developments, (today) it is not always easy to ethically evaluate issues of relevance.
- Procedures for the advisory support of political decision-making and the creation of social consensus are often labelled as ethical.
- With regard to the advisory and orientational function of ethics councils or ethics committees, ethics can also be understood as an activity at the interface between science and society.
- The close interweaving of normative questions with findings and experiences from specific contexts of human interaction also leads to a pluralisation of the ethical approaches and basic attitudes of actors concerned.
- A consensus is necessarily preceded by discourse. These involve illuminating and analysing ethical problems that have a highly practical relevance.
- Areas of applied ethics could be described as a very specific part of applied ethics. Here an area refers to a more or less clearly definable sphere of human practice that raises moral problems and questions.

- Although general conclusions can certainly be drawn from the known theoretical ethics for a specific situation, it is still necessary to reflect on the thematic contexts and the area-specific level of knowledge in order to arrive at a qualified judgement of a moral issue in a specific lived reality.
- Different applied area-specific ethics can overlap depending on how complex a morally challenging issue is.
- Ethical problems raised by raw material extraction cannot be dealt with simply in terms of applied area-specific ethics.

1.4.5 Knowledge test - Differentiation in complex reference contexts

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.


exercise

Task 1.21: Applied ethics and area ethics

Explain what is meant by applied ethics and area ethics.

The solution can be found in chapter 4.2 / 4.3

Time to complete approx. 30 min.


exercise

Task 1.22: Function of applied ethics and area ethics

Explain the function of applied ethics and area ethics. Give one example each from the field mining.

The solution can be found in chapter 4.2 / 4.3

Time to complete approx. 45 min.


exercise

Task 1.23: Business ethics and specialised knowledge

List some area ethics and explain why they also integrate specialised knowledge.

The solution can be found in chapter 4.3

Time to complete approx. 30 min.

exercise

Task 1.24: Differentiation of area ethics

Explain why area ethics cannot be clearly distinguished from one another.

The solution can be found in chapter 4.2 / 4.3

Time to complete approx. 20 min.

1.4.6 References - Differentiation in complex reference contexts

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1.5 SRR - Basic structure and relevance of the concept of responsibility

by Matthias Schmidt, Anna S. Hüncke and Nina Küpper

Last updated: 2025/03/26

This learning unit deals with a central concept of ethics: responsibility. In the previous learning units on ethics we have already seen that ethical challenges and conflicts can be very complex and that their solutions are by no means obvious. The same applies to responsibility, which has an inherent ethical dimension, especially when it comes to ethical or moral issues.

learningobjectives

Learning objectives After working through this learning unit, you should be able to:

- Distinguish between different types of responsibility.
- Outline the basic structure of responsibility and distinguish it from the concepts of guilt and liability.
- Recognise and describe the responsibility mining personnel can bear in different situations.

Content

Content

1.5 SRR - Basic structure and relevance of the concept of responsibility
1.5.1 Preliminary remarks on basic structure and relevance of the concept of responsibility
1.5.2 Basic dialogue structure of responsibility
1.5.3 Guilt and liability
1.5.4 Types of responsibility
1.5.5 Summary - Basic structure and relevance of the concept of responsibility
1.5.6 Knowledge test - Basic structure and relevance of the concept of responsibility
1.5.7 References - Basic structure and relevance of the concept of responsibility

Outline

Outline

The basic structure of responsibility and its distinction from the concepts of guilt and liability are outlined in this learning unit. Some different types of responsibility are then presented. This know-how can be helpful in answering the question of what responsibility raw material personnel may have in different situations. Types of responsibility can be for example:

- Legal responsibility
- Responsibility for roles and tasks
- Responsibility to act
- Moral responsibility
- Retrospective and prospective responsibility
- Positive and negative responsibility

- Individual and collective responsibility

You will need approx. 120 minutes to work through the learning unit and approx. 150 minutes to complete the exercises.

1.5.1 Preliminary remarks on basic structure and relevance of the concept of responsibility

Responsibility is an important and central concept when discussing the responsibility of individuals or groups for certain issues. When you attribute responsibility to someone or hold someone accountable, you are ascribing responsibility to that person. Even if we are familiar with the term responsibility in everyday conversations and contexts, on closer inspection it turns out to be very complex. Responsibility is anything but easy to grasp.

example

This is also true in the area of mining. The two questions alone

"Who is responsible for mining?"

and

"What is mining responsible for?"

can lead to long and contentious discussions.

Responsibility can also have an ethical dimension, namely when it comes to ethical or moral issues. In the learning units before, we have already seen that ethical challenges and conflicts can be very complex and that their solutions are by no means obvious. The same applies to responsibility. The attribution of responsibility is very preconditional. It is linked to a society's fundamental systems of values and norms, as well as to assumptions about which actors are capable of being responsible. We then speak of normative or epistemological assumptions that flow into the attribution of responsibility.[52] The basic structure of responsibility and its differentiation from the concepts of guilt and liability will be shown below. Some different types of responsibility are then presented. This know-how can be helpful in answering the question of what responsibility people from mining can have in different situations.

[52] Cf. Heidbrink (2017) *He17 , p.4*

1.5.2 Basic dialogue structure of responsibility

First of all, responsibility is a dialogue-based principle. This means that at least two actors are needed for a responsibility structure to emerge. Person A asks person B a question that begins with the question word "Why?" and person B provides a response. We can therefore say that person B "responds to" person A's question. The word responsibility contains the word response. Responsibility is therefore a reaction (from person B) to a question; and at the same time responsibility is the request (from person A to B) to answer a question. In this structure, two people are in a relationship of responsibility. It is in the nature of things that (controversially discussed) questions of responsibility are primarily questions with a moral or ethical quality. Although the simple question "What time is it?" is also subject to this basic structure, serious problems and disputes are unlikely to arise from the correct answer to this question. Nevertheless, there are also other forms of responsibility, such as the responsibility for tasks or positions, which is linked to the function that a person occupies.[53]

The further structure of the concept of responsibility can be explained from the basic dialogue structure of responsibility with at least two actors who respond to each other. In a context of responsibility there always needs to be a subject of responsibility: Who is responsible? There is also an object of responsibility: What is responsibility being requested for? And finally, an authority is needed against which responsibility is measured: To whom is one responsible?

To summarise, every relationship of responsibility can be described with the following formal question: "Who is responsible for what and to whom?" And last but not least, the question of why must be asked: "Why does person A demand a response from person B?" This last question refers to the contexts that justify the fact that person B can be held accountable at all. The following figure illustrates this connection.

[53] Cf. Lenk (1993) *Le93 , p.118*

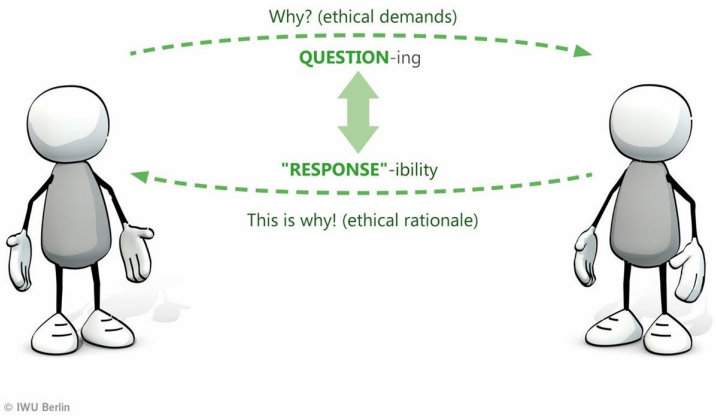

Fig. 1.2: Basic structure of responsibility

1.5.3 Guilt and liability

One conceptual association with responsibility is the concept of guilt, which in philosophical terms is a kind of precursor to responsibility.[54] As a rule, guilt is about the consequences of action and thus also about the attribution of responsibility. One is guilty if one has committed an act that is qualified as misconduct. Depending on the body assessing the quality of the behaviour, guilt can be interpreted theologically, ethically or legally.

In the contemporary age, the notion of guilt is mainly found in criminal law. Here it plays an important role in the assessment of a possible criminal offence. In a criminal law sense, guilt is understood as the individual culpability of the criminal offence.[55] This is based on the fact that the guilty party is causally involved in an event. He or she must have caused or contributed to it. This means that an event as it occurred would not have happened without the actions of the accused person.[56] However, causation alone in the sense of participation is not sufficient to determine the guilt of a person for an event. Culpability is also required.

citation

From: Aschenbach (2001) *Ac01* , *p.1272* , authors' translation

Original Quote

[54]Cf. Werner (2002) *We02* , *p.522*
[55]Cf. JuraforumWiki-Redaktion (2020) *Ju20*
[56]Hoerster (2012) *Ho12* , *p.103*

> Vorwerfbarkeit bedeutet, dass der Täter rechtswidrig gehandelt hat, obwohl er nach seinen Fähigkeiten und unter den konkreten Umständen der Tat in der Lage war, sich von der im Tatbestand normierten Pflicht zu rechtmäßigem Verhalten leiten zu lassen.

Culpability means that the perpetrator has acted unlawfully although, according to his abilities and under the specific circumstances of the offence, he was in a position to be guided by the standardised duty of lawful conduct in the case at hand.

In the area of mining, for example, the following case could be scrutinised.

The driver of an excavator in an open-cast mine causes an accident due to a defect in his work equipment. It turns out that he has been overworked for some time due to his heavy workload therefore has not thoroughly checked his excavator.

At the same time, it turns out that the company's safety engineer knew about the potential risks of this type of excavator, but this information was not passed on within the company.

Is it the “fault” of the safety engineer that the source of danger was not pointed out at an early stage due to a lack of communication? Or is it the “fault” of the excavator operator who was sloppy in his inspection? From a legal perspective, the question can now be asked: Who is liable for the damage and the preceding error? Who is at fault? Who is liable for the deed?

In each case, being at fault and bearing responsibility are about the attribution of an event or circumstance. It is about blaming someone for something and - in the legal sense - holding them liable or considering them guilty, or - in the ethical and moral sense - holding them accountable. The transitions between the use and meaning of the terms guilt and responsibility are fluid, especially in everyday language. In the current ethical discussion, the concept of guilt is hardly ever used. However, the concept of responsibility has risen to the rank of a key ethical category in the 20th century.[57] For this reason, as well as because of its ubiquity in public life and diverse uses, the focus below will be on responsibility.

[57] Cf. Bayertz (2017) *Ba17 , p.133*

1.5.4 Types of responsibility

Responsibility requires attribution to a specific responsible person or group of people. More generally, one could also speak of actors instead of persons. We have already seen that the three question words "Who?", "For what?" and "Towards whom?" are necessary for the attribution of responsibility. We therefore need a subject (who), an object (for what) and an authority (towards whom) in order to clarify the question of responsibility in a situation. In addition, the reason (why) is very important. This is not least to clarify whether we are dealing with moral or ethical or legal responsibility. Based on these relationships and the basic dialogue structure concerning responsibility outlined above, it becomes clear that responsibility is a formal notion. However, it is by no means uniform and can be filled with different content in different contexts. Therefore misunderstandings and conflicts can quickly arise in the discussion about specific responsibilities. It is hence important and helpful to be able to distinguish between different types of responsibility. The following list explains some of the most important types of responsibility. See also Lenk[58][59] and Heidbrink[60] for more details.

Legal liability

Legal liability is a more or less concretely enforceable sanction for misconduct. This responsibility should be objectivised and satisfy legal criteria of guilt.

example

For example, the management of a raw materials company would be held legally responsible if it was proven to have deliberately violated the environmental laws of a country in which it mines raw materials. This would be sanctioned by a court.

Responsibility for a role or for a task

In a sociological sense, a role refers to the expectations of and demands on a person's behaviour that are linked to their social position.[61] A person is therefore responsible for fulfilling the expectations of their role or task - for example with regard to their professional position.

example

A mining professional is responsible for their role or tasks. For example, they are expected to fulfil certain duties of care or, in simpler terms, to fulfil their professional duties correctly and in a timely manner. In addition, further duties may arise from

[58] Lenk (1993) *Le93*, *p.115-116*
[59] Lenk (2017) *Le17*, *p.65-66*
[60] Heidbrink (2017) *He17*, *p.10-11*
[61] Cf. Spektrum (2000) *Sp00*

the professional position. These may include representing the company in public or certain duties of loyalty to the line manager and the employer.

At the same time, a person can also have several roles, which can be interwoven in complex ways depending on their position in society and in their professional field. It is not uncommon for the different expectations of the respective roles to collide.

example

Consider, for example, role conflicts that can arise when expectations from the private and family sphere collide with expectations from the professional sphere.

In the professional context in particular, role responsibility is by its very nature primarily formally imposed, i.e. linked to the position in the organisation. As such, this responsibility is usually initially ethically and morally neutral. It is about fulfilling the assigned exercises and being accountable to one's superiors in this sense. Nevertheless, an initially non-moral role responsibility can also become indirectly morally relevant in the job.[62]

example

So, if a mining engineer criminally manipulates an environmental report on the instructions of her superior, knowing fully well what she is doing, she will be held both morally and legally accountable. After all, blind obedience to perform exercises to the satisfaction of the boss that contribute to the company pursuing immoral or even illegal purposes can hardly be justified by referring to the role as an employee. Hence, it can also not excused with reference to that.

Responsibility for actions

Responsibility for the consequences of actions focuses on the result of one's own actions. A direct and strong causal link is assumed here. This means that it is assumed that the occurrence of an event can be traced back to a previous action. A strong cause-and-effect relationship is therefore assumed between an event that has occurred and a previous action.

example

For example, if a mining engineer fails to comply with prescribed safety standards when instructing employees in order to save time and an accident occurs in the mine as a result, then this accident is a consequence of the engineer's action and he is responsible for it.

[62] Cf. Werner (2002) *We02b* , *p.525*

Depending on the authority and context of the justification, the responsibility to act can be interpreted both legally and morally and attributed accordingly.[63]

The concept of action can also be interpreted in a negative sense, i.e. with a view to non-action. This means that you are not only responsible for what you do, but also for what you omit to do. You are also responsible for omitting actions that are actually required. Suppose the occupational safety departement of a mining company fails to react to a hazard report. In that case, it has not taken necessary and required measures and must take responsibility for this omission.

It can therefore be seen that one can be held responsible for the consequences of both actions and omissions.

Moral responsibility

Universal moral responsibility is the most comprehensive and fundamental type of responsibility. It can also include the aforementioned legal responsibility as well as the responsibility for roles and actions. Or it can play into these. In principle, it cannot be delegated and is orientated towards very fundamental authorities to whom one is responsible.


example

Possible fundamental values on which moral responsibility is based include humanity, dignity or the preservation of human life.


example

An excavator operator resists her supervisor's order because she believes the order would violate indigenous people’s cultural rights. For example, if she were to work near places of worship. To justify this, she invokes human dignity, which applies to indigenous people as much as to any other human being. In this case, she accepts her personal moral responsibility.

[63] Cf. Lenk (2017) *Le17* , *p.66*

Video

Med. 1.6: Indigenous Peoples and Mining

YouTube – ICMM

Time to watch 1m2s

websource

Further reading:

ICMM (2024, August 8).

Indigenous Peoples: Position Statement.

Reading time 20 minutes

Retrospective and prospective responsibility

The fact whether an event for which responsibility is to be taken lies in the past or in the future is concretised with the terms retrospective (looking back) or prospective (looking forward) responsibility.

As a rule, one thinks of retrospective responsibility when no other details are stated. This applies to the conventional responsibility for action. According to this, a past behaviour has led to a current event. You did something in the past for which you are responsible today.

example

A mining engineer caused a system crash in his company yesterday, leading to a loss of revenues today because the monitoring and control of fundamental processes in open-cast mining can no longer be controlled. The loss of turnover is due to the engineer's previous misconduct, for which he is responsible.

Prospective responsibility, on the in contrast, refers to the fulfilment of tasks. This type of responsibility can be thought of as care or precautionary measure.

example

The management of a mining company, for example, has the task of developing further mines for the responsible extraction of raw materials. Its responsibility and competence extends into the future. Exactly how these mines are to be developed must only be determined during the authorisation process. Prior to this, it can be left to the responsibility of the team or individual stakeholders.[64]

Positive and negative responsibility

The distinction between positive and negative responsibility can also be emphasised in connection with prospective responsibility. However, this distinction is not an exclusive attribute of prospective responsibility; it can also occur retrospectively and in conjunction with other types of responsibility.

Positive responsibility

Positive responsibility aims to bring about a desired state of affairs that is considered positive. Example: This would be the case, for example, if the biodiversity department were entrusted with the development of a modern, nature-friendly recultivation concept of an old mine.

[64] Cf. Werner (2002) *We02b* , *p.521*

Video

Med. 1.7: Ep 3: What happens to a mine AFTER it is closed?

YouTube – Mining2Me

Time to watch 2m22s

Negative responsibility

Negative responsibility, on the contrary, is aimed at avoiding an undesired state that is considered negative.

example

This would be the case, for example, if the workers in the mine were given the responsibility not to damage neighbouring natural areas.

More generally, and in a more fundamental moral sense, it can be said that negative responsibility must not harm the well-being of a person or a community. Positive responsibility moreover aims to create or improve the well-being of a person or a community.[65]

Individual and collective responsibility

[65] Cf. Petersen (2017) *Pe17b* , *p.29*

In its basic model, the concept of responsibility is an individual attribution of responsibility. It is assumed that a single person bears responsibility because an event is directly attributed to that person. The attribution of responsibility to groups is more problematic. Particularly in today's working world, which is based on the division of labour and teamwork, ways must be found to determine responsibilities that result from group behaviour. Joint responsibility cannot function in an arithmetical sense. This means that, for instance, responsibility for damage that has occurred cannot be mathematically divided among those responsible. This would end up confirming the well-known office joke "We share responsibility until there is none left!". Shared responsibility in a joint project should therefore not lead to a dilution effect.[66]

Even if, for example, a company is seen as a collective actor that can be held liable as a legal entity in the event of a fault. This is not possible in the case of moral misconduct. Here, responsibility always remains tied to the individuals, even if collective responsibility is attributed to the group due to collective misbehaviour.

To illustrate this with a drastic example: If two people jointly and equally commit a murder, are caught and convicted, then both receive the full sentence; it cannot be assumed that their respective prison sentences will be halved.

Concluding remarks on this learning unit

The aim of this learning unit was to shed light on the complexity and diversity of the concept of responsibility. Depending on the context and situation, the use of the term responsibility can have different connotations. This can quickly lead to misunderstandings or even exacerbate conflicts. For example, when a decision is made based on a group's understanding of its role that no longer seems comprehensible from the perspective of an individual's responsibility for action. Nevertheless, a basic understanding of the concept of responsibility enables a better assessment of problematic situations. This may lead to more rational judgements and decisions.

1.5.5 Summary - Basic structure and relevance of the concept of responsibility


summary

- Responsibility is a principle of dialogue. This means that at least two actors are needed for a responsibility structure to emerge.
- Responsibility is a reaction (from person B) to a question; and at the same time responsibility is the request (from person A to B) to answer a question.

[66] Cf. Lenk (1993) *Le93 , p.127*

- It lies in the nature of things that (controversially discussed) questions of responsibility are primarily questions with a moral or ethical quality.
- As a rule, guilt is about the consequences of actions and therefore also about the attribution of responsibility.
- One can be held responsible for both actions and omissions.
- Guilt and responsibility are both about the attribution of an event or a state of affairs. It is a matter of blaming someone for something and - in the criminal law sense - holding them liable, or - in the ethical and moral sense - holding them accountable.
- Three question words are necessary for the attribution of responsibility: "Who?", "For what?" and "Towards whom?".
- Legal responsibility is a more or less concretely enforceable sanction for misbehaviour.
- The following types of responsibility can be distinguished:
  - Legal responsibility
  - Responsibility for roles and tasks
  - Responsibility to act
  - Moral responsibility
  - Retrospective and prospective responsibility
  - Positive and negative responsibility
  - Individual and collective responsibility
- In a sociological sense, responsibility for roles refers to the expectations and demands on a person's behaviour that are linked to their social position.
- In the case of responsibility for the consequences of actions, the focus is on the result of one's own actions. A direct and strong causal relationship is assumed here.
- Universal moral responsibility is the most comprehensive and fundamental type of responsibility.
- The fact whether an event for which responsibility is to be taken lies in the past or in the future is concretised with the terms retrospective (looking back) or prospective (looking forward) responsibility.

- Positive responsibility aims to bring about a desired state of affairs that is considered positive. Negative responsibility, on the other hand, aims to avoid an undesirable state that is considered negative.
- Individual responsibility is based on a single person who bears responsibility because an event is directly attributed to that person. Even if collective responsibility is attributed to the group due to collective misbehaviour it is always linked to the individual group members as well. It cannot be mathematically divided among those responsible in an arithmetical sense.

1.5.6 Knowledge test - Basic structure and relevance of the concept of responsibility

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.

exercise

Task 1.25: Types of responsibility

Name and explain the different types of responsibility in your own words.

The solution can be found in chapter 5.4

Time to complete approx. 45 min.

exercise

Task 1.26: Structure of responsibility

Outline the basic structure of responsibility and differentiate it from the concepts of guilt and liability.

The solution can be found in chapter 5.2 / 5.3

Time to complete approx. 45 min.

exercise

Task 1.27: Examples of responsibility in mining

Give three examples that show what responsibility mining professionals can have in different situations.

The solution can be found in chapter 5.1 to 5.4

Time to complete approx. 60 min.

1.5.7 References - Basic structure and relevance of the concept of responsibility


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1.6 MCR - Modern challenges to responsibility

by Anna S. Hüncke, Matthias Schmidt and Nina Küpper

Last updated: 2025/04/19

In this learning unit, the classic concept of responsibility is expanded in a number of ways. The aim is to apply responsibility to modern, complex systems. This is problematic because systems are very complex and dynamic and thus elude direct access. These contexts also place special demands on the people who are responsible for mining.

Content

Content

1.6 MCR - Modern challenges to responsibility
1.6.1 Preliminary remarks on modern challenges to responsibility
1.6.2 The imperative of responsibility
1.6.3 Cumulative effects and unforeseeable consequences
1.6.4 System responsibility
1.6.5 Unconditional responsibility and practical caution
1.6.6 Summary - Modern challenges to responsibility
1.6.7 Knowledge test - Modern challenges to responsibility
1.6.8 References - Modern challenges to responsibility


learningobjectives

Learning objectives

After working through this learning unit, you should:

- Know and be able to explain the basic ideas behind the principle of responsibility and the concept of system responsibility.
- Be able to anticipate and reflect on the demands that are placed on people's attitudes in mining. These demands arise from complex interrelationships in the world.
- Be able to explain why responsibility can be transient in modern and complex systems.


Outline

Outline

The "principle of responsibility" according to Hans Jonas forms the basis of this learning unit, in which it thematises the responsibility of humans for nature.

It then explains how humans are able to destroy the earth through the cumulative effects of individual behaviour. It is further shown that the consequences of human actions are unpredictable and that at the same time humans are responsible for these.

System responsibility builds on this and attempts to define the system as the bearer of responsibility. This takes account of a modern society that is differentiated into systems.

Finally, with a view to people in mining, it is also reflected that a cautious attitude can be advisable in complex environments and in an uncertain future.

You will need approx. 120 minutes to work through the learning unit and approx. 240 minutes to complete the exercises. This unit is demanding in terms of content. If you are seeking an in-depth understanding it could take more time.

1.6.1 Preliminary remarks on modern challenges to responsibility

With knowledge of the basic structure and some significant types of responsibility, one is already in a good position to analyse who specific occurrences of events or situations should be attributed to. It should be indisputable that a tailings dam failure leading to the release of partially toxic materials into the environment is viewed negatively. The responsible geotechnical engineers could be held responsible for the damage and held accountable accordingly. Here is a relatively clear allocation of responsibilities and accountability. The question of whether the entire group or one or more individuals should be held responsible in a particular way can also be examined and analysed at large using the basic principles of responsibility.

The following video depicts how disastrous effects tailings dam failures can have:

Video

Med. 1.8: Ep.12 How the mining industry is responding to tailings dam failures

YouTube – Mining2Me

Time to watch 2m37s

1.6.2 The imperative of responsibility

The widely known work "The Imperative of Responsibility"[67] by the German-American philosopher Hans Jonas (1903 - 1993) has decisively expanded the discussion on responsibility. Published in 1979, his discussion of responsibility reflects on the technical and nuclear possibilities for the destruction of humanity that emerged in the 20th century. The principle of responsibility thematises nothing less than human existence in its entirety and in general. It expands the concepts of responsibility that had been established until then. Due to the technical possibilities that humans have developed, they have the power to destroy themselves and the earth. In other words, humans are in a position to extinguish all life on earth. This creates a responsibility that goes far beyond the basic question structure of "Who (subject) is responsible for what (object) and to whom (authority)?".

example

The responsibility that arises in this context has a different quality than the responsibility for roles that a mining professional has towards their employer, for example. It also has a different quality than the moral responsibility of a HR-head in a mining company who, with reference to human dignity, defies an acquaintance working for a head hunter and refuses to share details of the company's mining professionals.

A few theoretical considerations are required to clarify this new quality.

The imperative of responsibility is based on human existence and thus also on the conditions for responsibility in general.[68] In order to speak meaningfully of responsibility, human existence must be presupposed. Without existence, one could say, there is no responsibility. Conversely, however, one could also say: without responsibility (in the sense of: without acting responsibly) there is no existence. Because due to its immense technological possibilities, man has the power to extinguish the existence of

[67] Jonas (1979) *Jo79*
[68] Cf. Werner *We02b*, *p.524*

human life. And it is clear: "The demands of responsibility grow in proportion to the deeds of power".[69]

With this conception of responsibility, the object (for what?) and the authority (towards whom?) of responsibility fall into one.[70] This means that we, as subjects of our actions, are responsible both for human existence (object) and towards human existence (authority). In addition, the previous "anthropocentric monopoly of most former ethical systems"[71] is broken through. For in the earlier ethical systems, it was the interests and rights of humans that were to be respected by ethical behaviour. In principle, these ethical duties towards humans retain their validity. "But now the whole biosphere of the planet with all its plenitude of species, newly revealed in its vulnerability to man's excessive intervention, claims its share of the respect owed to all that is an end in itself–that is: to all that is alive."[72]

It is life, the living itself, that has become the focus of responsibility, not just man with his interests. Man is no longer only man as an end in himself. In the imperative of responsibility, nature is now also recognised as an end in itself. Thus nature is no longer a mere disposable mass for humans to intervene in according to their interests. Nature is no longer a mere means to humankind's end. "As a planetary power of the first rank, he [man, author's note] can no longer think only of himself."[73] In the imperative of responsibility, man is responsible to nature, he is in a sense (theoretically) accountable to it. In the most fundamental sense, man is thus responsible for ensuring that responsibility is further possible. The imperative of responsibility places responsibility at the centre of our actions and is also the prerequisite for responsibility in general. Without nature, without existence, without humanity, the notion of responsibility makes no

[69] Cf. Jonas (1993) *Jo93* , *p.85* , authors' translation

Original Quote

Die Anforderungen an die Verantwortlichkeit wachsen proportional zu den Taten der Macht.

[70] Cf. Werner *We02b* , *p.524*

[71] Cf. Jonas (1993) *Jo93* , *p.84* , authors' translation

Original Quote

(...) anthropozentrische Monopol der meisten früheren ethischen Systeme.

[72] Cf. Jonas (1993) *Jo93* , *p.85* , authors' translation

Original Quote

Aber jetzt beansprucht die gesamte Biosphäre des Planeten mit all ihrer Fülle von Arten, in ihrer neu enthüllten Verletzlichkeit gegenüber den exzessiven Eingriffen des Menschen ihren Anteil an der Achtung, die allem gebührt, das seinen Zweck in sich selbst trägt – d.h. allem Lebendigen.

[73] Cf. Jonas (1993) *Jo93* , *p.85* , authors' translation

Original Quote

Als eine planetarische Macht ersten Ranges darf er [der Mensch, Anm. d. Verf.] nicht mehr nur an sich selbst denken.

sense. Where there is nothing, nothing can or needs to be taken responsibility for. In short, we are responsible for the conditions of existence, i.e. for nature.

It is quite obvious that mining affects the landscape and hence human life and nature. Thus it is probably not far-fetched to conclude that from an ethical consideration mining bears responsibility for existence (of nature and mankind). With the arguments of Hans Jonas and the imperative of responsibility, which is still effective today, it is only a small (argumentative) step to also consider dignity for nature. Especially in connection with Kant's insights, which flow into the concept of human dignity, the following applies: "What has a price can also be replaced by something else as an equivalent; what, on the other hand, is above all price, and therefore does not allow for an equivalent, has a dignity."[74] If one follows the imperative of responsibility, according to which nature bears its purpose in itself, then one would logically have to ascribe at least an intrinsic value to nature as a whole, of which humans are a part.[75] In the case of the destruction of nature and all life, there would no longer be an equivalent that could be put in its place. There would be no price to pay except that of annihilation itself. The conceptual proximity to dignity, at least in the sense of an end in itself, thus appears to be given.

Video

[74] Cf. Kant (1993) *Ka93 , p.68* , authors' translation

Original Quote

Was einen Preis hat, an dessen Stelle kann auch etwas anderes, als Äquivalent, gesetzt werden; was dagegen über allen Preis erhaben ist, mithin kein Äquivalent verstattet, das hat eine Würde.

[75] Cf. Jonas (1979) *Jo79 , p.29*

Med. 1.9: L'éthique du futur de Jonas

YouTube – UVED

Note: To watch the video with automatically generated subtitles, click on the gear icon and select "Subtitles/CC". Then choose “Auto-translate” and select your preferred language.

Time to watch 8m29s

websource

Further Reading:

Barrero, Andres Felipe (2024, April 18). The Collector.

Hans Jonas on Responsibility in the Age of Artificial Intelligence ”.

Reading time 15 minutes

As humans, we can interfere with nature through mining activities. We might turn nature into a mere means for our own purposes and possibly change it irreversibly. This makes obvious the vulnerability of nature[76] and therefore its need for protection. The local impact of mining on the environment is probably well graspable and concretely measurable, e.g. it manifests in deforestation and erosion. However if we look at the impact of mining activities on our planet from a global perspective then the changes caused might best be grasped as estimates. This includes calculations of CO2 emissions, for instance.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) has recognised the problem and writes in its key issues paper from May 2019:

citation

From: BMU – Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (2019) *BMU19* , authors‘ translation

Original Quote

Dass auch die Digitalisierung erhebliche Auswirkungen auf Umwelt und Natur hat, wurde lange unterschätzt. Unverändert fortgesetzt wird sie zum Brandbeschleuniger für die ökologischen und sozialen Krisen unseres Planeten, weil sie die Überschreitung der planetaren Grenzen weiter beschleunigt: Mehr Energie- und Rohstoffverbrauch, mehr Konsum und mehr Verkehr.

The fact that digitalisation also has a significant impact on the environment and nature has long been underestimated. If it continues unabated, it will become an accelerant for the ecological and social crises of our planet because it further accelerates the transgression of planetary boundaries: More energy and raw material consumption, more consumption and more transport.

If the mining profession has the duty of ensuring standards in, for example, climate, environmental and resource protection, then it is at least indirectly responsible for nature with its expertise. And, hence, it contributes to nature’s existence. Conversely: In the event of damage to the environment due to inadequate mining activities, the relevant experts would be "guilty" in terms of the imperative of responsibility not only towards their fellow human beings, but also towards nature as a whole. This applies all the more to future consequences. Even if this conclusion is very far-fetched and hardly practically applicable, it points out that the fundamental responsibility of the actors in mining can also be defined very far-reaching depending on the situation. By no means it ends at the factory gates of the institutions where they work.

[76] Cf. Jonas (1979) *Jo79 , p.26f*

exercise

Task: Transfer task

Hans Jonas writes: "What is beyond all price has a dignity."

What do you think this means when applied to nature?

Do you think it makes sense to say that nature has a kind of dignity or an "intrinsic value"-something that shouldn't just be used or replaced?

Explain your view, especially in relation to modern technologies like mining, digitalisation, or artificial intelligence.

Should engineers take this idea into account in their work?

Time to complete approx. 45 min.

1.6.3 Cumulative effects and unforeseeable consequences

"The Imperative of Responsibility" by Hans Jonas is a much-noticed and central work and, as the subtitle of the book of the same name says, "A Search for an Ethics for the Technological Age"[77] Basically, with his prospective concern for humanity, he states a rather gloomy future, at least a very endangered future, for which we are all responsible with our actions.

Nevertheless, the approach is not free from criticism.[78] The subject (Who? All of us) of responsibility remains vague. As we have already seen in connection with collective responsibility, the distribution of responsibility to "all" is a difficult endeavour. In the end, after some criticism, Jonas' approach remains - at least in practical terms - an "appeal without an addressee".[79] But it is a sharp and justified appeal, an appeal that clearly shakes up our sense of responsibility.

Up to this point, despite all criticism, we can maintain that, firstly, our responsibility is not limited to the past and present. But it also extends far into the future, where the effects of our actions reach. And secondly, we can state that our responsibility extends far beyond the immediate sphere of our actions. It extends into global dimensions where the consequences of our decisions and actions take effect.

Thirdly, the distant and future consequences of our actions can no longer be attributed to individual persons. Rather they are the result of the uncoordinated actions of countless people. We are dealing with cumulative effects. With regard to the extraction

[77] Jonas (1979) *Jo79*
[78] Cf. Banzaf (2017) *Ba17b , p.151*
[79] Banzaf (2017) *Ba17b , p.76*

of raw materials for instance the consequences affects future and global climate, e.g. through CO2-emissions in our atmosphere that may lead to global warming in future and the rise of temperature in particular regions.

The question that arises for modern ethics is how to deal with cumulative effects. This refers to synergies in the effects that result from the actions of many people without being able to attribute these cumulative consequences to individual causal agents.[80]

example

Climate change is a good example of this. The constant warming of the earth is the result of the actions of people as a whole. Each and every individual is involved. Even if a single person behaves in a way that is more or less climate-friendly or climate-damaging, this individual behaviour is irrelevant for the global development of the climate. It is only when the individual behaviours of all people come together that the cumulative effects on the climate occur. These effects are relevant both beyond the respective region and in the future. Sometimes it seems that it is only through the cumulative interaction of otherwise subliminal impacts that significant damage occurs on a global scale. See Lenk[81] in detail on cumulative effects.

Fourthly, the sometimes very complex side effects of actions must also be addressed in connection with a modern understanding of responsibility. Large-scale technological projects in particular, especially if they are to result from the collaboration of many participants, can have both foreseeable and unforeseeable side effects.[82] It is almost impossible to identify a single person or group who is ultimately responsible for unforeseeable side effects.

[80] Jonas (1979) *Jo79 , p.27f*
[81] Lenk (1993) *Le93 , p.129*
[82] Cf. Lenk (1993) *Le93 , p.130*

Video

Med. 1.10: What are cumulative effects?

YouTube – Environment and Climate Change Canada

Time to watch 2m48s

example

Another example is the development of the corona vaccines and finally the national and international roll-out of the vaccination. A large number of people in different parts of the world worked flat out to develop effective vaccines. It is a collaborative endeavour under the pressure of the rampant pandemic with the aim of: protecting people, getting the spread of the virus under control and ultimately restoring a "normal" social life. As such, vaccine development is not just a matter for research laboratories, but for politics, business, medicine, etc., and hence for society as a whole. (Almost) everyone wants a vaccine, and they want it quickly and effectively - which is also in their personal interest.

But who is responsible for this? On the one hand for production and distribution, but also for unforeseeable side effects? The industry, the politicians, the consumers, all of us? Anyone who has followed the current developments and those of the recent past will probably remember the disputes and negotiations concerning precisely these issues. With the very specific headline: "Corona vaccination: who pays for possible

damage?" and the teaser that immediately followed: "The pharmaceutical industry does not want to accept any liability for possible undesirable health consequences of the corona vaccination. European taxpayers should pay."[83] is how the Berliner Zeitung sums it up. Even if, in the end, we are all jointly liable for de facto damage, the complex question of fundamental responsibility for what has happened is far from being resolved. This will probably require a lengthy follow-up political and social discourse in Germany, Europe and beyond.

Assuming that European taxpayers are held liable and have to pay, this would mean that they are all (legally) responsible - even if they are represented by state institutions.

Monetary damages can still be distributed and compensated for via taxes if necessary. Thus it is possible to construct a liability responsibility. However, this procedure does not work in the case of fundamental responsibility. It would be absurd to say that with around 450 million EU citizens, every single one of them is responsible for a mere four hundred and fifty millionth of the unforeseeable side effects of the coronavirus vaccination. This would be cynical. It would not do justice to the human suffering that would have been caused by the unforeseeable damage.

With regard to unforeseeable side effects of collective actions and the unforeseeable cumulative effects that may be associated with them, it is clear - as illustrated by the example of the coronavirus vaccination - that humanity can bring about events that it can no longer foresee itself. The events are enabled through the world's technological and increasingly digital possibilities. In this respect, our collective power of action in certain areas seems to have outgrown our possible foresight. This applies in technological terms, as well as in spatial and temporal terms. This creates a paradox for responsibility. For what we cannot know, we cannot (morally) take responsibility for.[84] However, if responsibility can no longer be attributed to individual persons, then responsibility would either have lost itself into the void. Or one would have to ascribe responsibility to the entire system.

[83] Maier (2020) *Ma20* , authors' translation

Original Quote

> Corona-Impfung: Wer zahlt für mögliche Schäden? Die Pharmaindustrie will keine Haftung für mögliche unerwünschte Folgen der Corona-Impfung übernehmen. Bezahlen sollen die europäischen Steuerzahler.

[84] Cf. Lenk (1993) *Le93* , *p.130*

1.6.4 System responsibility

System responsibility is a very recent term in the responsibility debate. It has developed as a result of the problems described that complex issues cannot be attributed to specific persons or groups of persons. This is because the modern technological processes already described and the modern social processes on which they are based take place in a systemic manner. They are complex and often reflexively interwoven. And they can no longer be attributed to individuals. In order to refer to responsibility in any meaningful way, one tries to attribute responsibility to systems.[85]

Systems as such are no longer the object (the "what for?") of responsibility. In this sense, for example, a mining company is no longer responsible for its mining operations. Rather, for example, in the event of unforeseeable environmental damage through no fault of its own, a mining company could transfer the responsibility to its higher-level system. This might be the technological system of an industry or even society, including its good practice and governance structures. In short: system responsibility makes the system itself the bearer (the "who?") of responsibility.

In a system-theoretical sense, a system is a structure that consists of structures and processes that are interwoven and interdependent. Systems are structurally orientated towards their environment and cannot exist without their environment.[86] However, in their internal organisation they are autonomous and autopoietic.[87][88] This means that they have their own laws, which to a certain extent separate them from their environment. The laws consolidate over time and perpetuate from within the systems. For example, our society can be understood as a system with its own processes and structures. At the same time, a society can also have subsystems, such as the economy, science or certain technologies. The respective systems have their own laws and are functionally distinct from one another. The economy has a different function and different modes of operation than science. Mining, for example, could also be described as a subsystem of economics, which itself has its own logic and laws within a society.

But how can you make a system responsible? How can we meaningfully speak of a system as a bearer of responsibility if it is an impersonal entity and only arises from the interaction of its internal processes? “You could also say that responsibility has become an atopia, a non-place, with increasing complexity. It can no longer be localised, delimited or pinpointed. It wanders within the subjectless processes, eludes our cognitive grasp and resists attempts at normative definition."[89] This means that although

[85] Cf. Wilhelms (2017) *Wi17 , p.515*
[86] Cf. Luhmann (1994) *Lu94 , p.35*
[87] Cf. Maturana (1987) *Ma87 , p.55ff*
[88] Cf. Luhmann (1994) *Lu94 , p.60f*

responsibility exists in a system, it cannot be grasped. So mining bears responsibility if there is a mining system - which can be presumed, at least in broad terms - that is a functional subsystem with its own logic, has its own practised processes and a self-perpetuating set of rules. The question remains: How can this be done?

In simple terms, the answer is: through design and/or context steering.[90] This takes account of the fact that a system is embedded in an environment in which it has to maintain itself. On the one hand, one could attempt to feed ethical aspects into the processes of a system and thereby maintain a kind of moral quality of the system events (design).[91] Or one could try to steer the system dynamics in a desired direction via legislation or monetary incentives or similar (context). This would, so to speak, change the framework conditions within which a system operates. Circumstances are created that influence the system's range of possibilities.[92] This opens up a scope in which the self-organising dynamics of the relevant system can unfold. [93]

example

Government funding measures for mining, for example, could provide an impetus for secured access to raw material supply of the economic system as a whole, thereby influencing the internal dynamics of the economic system. For example, if certain mining technology infrastructures were to receive special funding because they are considered to be more environmentally or climate-friendly this would be an attempt to indirectly feed environmental or climate responsibility into the mining system. As a result, the individual mining engineer would no longer be responsible per se for the environmental impact resulting from the use of a certain technological basis, but rather the system to which they belong. For their part, the mining engineer can act ethically within the scope of their possibilities. This is by influencing the ethical quality of the systemic processes to which their responsibility has been delegated.

In the understanding of system responsibility, individuals act responsibly by delegating responsibility to systems.[94] At the same time, an individual's actions, which are considered ethically positive, are qualified by the fact that they influence the ethical

[89] Heidbrink (2007) *He07* , *p.115* , authors' translation

Original Quote

Man könnte auch sagen: Verantwortung ist mit zunehmender Komplexitätssteigerung zu einer Atopie geworden, zu einem Nicht-Ort, sie lässt sich nicht mehr verorten, eingrenzen, dingfest machen. Sie vagabundiert innerhalb der subjektlosen Prozessabläufe, entzieht sich unserem kognitiven Zugriff und widersetzt sich den Versuchen der normativen Festlegung.

[90] Cf. Heidbrink (2017) *He17* , *p.21*
[91] Cf. analogously Wilhelms (2017) *Wi17* , *p.510*
[92] Cf. Schmidt (2016) *Sc16* , *p.79ff*
[93] Cf. Wilhelms (2017) *Wi16* , *p.104f*
[94] Cf. Heidbrink (2017) *He17* , *p.22*

quality of the overall order and its processes. In turn, the overall order also determines the individual's options for action and thus influences the positive quality of the individual's actions.[95] In this way, processes can also be personalised, for example if they are assigned to a specific position and thus to an employee who is responsible for this very process.

As mentioned above, the reflexive and complex structure of a social system means that responsibility wanders around the system. It cannot be pinned down to a specific systematic location. However, to assume that responsibility would therefore disappear and that a system would become a kind of ethically neutral space is far from the truth. On the contrary, responsibility may even have increased, albeit in a different quality.

Complex system responsibility is an attempt to provide an answer to the complexity of modern societies with their equally complex social and technological subsystems. Last but not least, it protects the individual from being overwhelmed, but without releasing them from their responsibility. Because in order to interrupt the self-running of operationally closed systems and to channel their internal logic, it is necessary for people to challenge the rules and influence their ethical quality.[96] In extreme cases, this would even mean refusing to carry out certain processes in the system. If function holders in a system refuse to perform their function properly and routinely, processes come to a standstill and the system is disrupted and challenged.[97] And the ethical conscience of a human subject, which can lead to such a refusal, cannot be delegated to the subjectless system. The more centralised and powerful the function holders are, the greater the disruption will be. Nevertheless, power in a system never lies exclusively with one person: "No part of the system can control others without being subject to control itself".[98]

The power to influence the ethical quality of a system does not have to be located exclusively at the highest levels of management. Each mining engineer can also have a high level of influence in the system, for instance if they discover an issue that can stop the extraction process, e.g. a hazard like unstable slope conditions or a protected plant or animal species in the mining area.

websource

[95] Cf. Wilhelms (2017) *Wi17* , *p.512*
[96] Cf. Wilhelms (2017) *Wi17* , *p.522*
[97] Cf. Ulrich (2008) *Ul08* , *p.167ff*
[98] Luhmann (1994) *Lu94* , *p.63* , authors' translation

Original Quote

Kein Teil des Systems kann andere kontrollieren ohne selbst der Kontrolle zu unterliegen.

Further reading:

Sustainability Directory (2025, March 30).

Corporate System Responsibility.

1.6.5 Unconditional responsibility and practical caution

System responsibility has drawn attention to the fact that our ability as individuals and actors to assume responsibility in complex social and technological systems has its limits. Admittedly as individuals or groups we can act responsibly in systemic contexts by influencing the rules or refusing to continue participating in established processes. However, we inevitably reach the limits of what we can be expected to take responsibility for individually. Nevertheless, it can happen in systemic contexts and appear acceptable from the perspective of responsibility theory that we are responsible for the failure of our efforts. We may have to accept the blame for this failure without being causally responsible for it.[99]

example

Imagine for instance that a CEO of a mining company has to step down because of a severe environmental damage caused by the misconduct of his company's operations department, even though the CEO themselves were not at fault.

When it comes to the question of responsibility, we should always take into account what we cannot be held responsible for and what therefore lies within the realm beyond our responsibility. But this should not be an excuse or a blanket apology. In ambivalent and complex situations of responsibility, the main issue is how to deal with responsibility, not how best to escape the burden of responsibility.[100] The boundaries of responsibility are fluid, fleeting and in need of justification. Both with regard to the system and with regard to the individual person in the system.

Responsibility cannot be circumvented. This applies to both people and systems. If we take the systemic approach further, we arrive at a holistic way of thinking in which nature or the world as a whole is the big system. We are all interwoven into this great whole as parts. From this interconnectedness, we can derive an unconditional

[99] Cf. Heidbrink (2007) *He07 , p.171*
[100] Cf. Heidbrink (2007) *He07 , p.194*

responsibility for each and every one of us. According to systemic logic, my behaviour as one part of the system in principle changes the possibilities of all other parts of this system. I change the scope of possibilities for everyone in the system.[101] This means that I change their room for manoeuvre in concrete terms, but without knowing whether this happens in a positive or negative way.

Recognising and acknowledging unconditional responsibility means that we should initially orientate ourselves towards a kind of regulative non-permission, as our activities encroach on others' scopes of possibilities. This means refraining from acting rashly and exercising a well-considered and reflected practical caution in our decisions and actions.[102] After all, we do not immediately know whether these interventions in the structure will be positive or negative. This practical caution in our decisions and actions is not to be understood as a foot on the brake of our lives. Rather it should be seen as an attitude that arises from the knowledge of systemic connections and complex modes of action, whose autonomy – once triggered – can hardly be contained. Such an attitude is similar to the so-called "heuristic of fear".[103] This is derived from the imperative of responsibility discussed above and geared towards a defensive – cautious – approach to anticipated and unforeseeable distant effects of our actions and our technological possibilities.

This attitude has three implications for mining:

1. Firstly, the knowledge of the complexity, global interwoveness and internal dynamics of mining makes clear its crucial position of mining for institutions and society in general. To a certain extent, mining is a prerequisite for the secure progress of our technologies.

1. Secondly, this practical caution as a fundamental ethical attitude is a guideline for the handling of mining activities from discovery off raw materials to mine closure.

1. Last but not least, this attitude can, thirdly, serve as a guide for individual mining experts in their specific professional tasks and duties in their day-to-day work.

1.6.6 Summary - Modern challenges to responsibility


summary

- We live in a highly networked and technologised world in which people work together collaboratively and thus cause events that can no longer be grasped with a traditional understanding of responsibility. This is particularly true when we

[101] Cf. Schmidt (2017) *Sc17* , *p.93*
[102] Cf. Schmidt (2016) *Sc16* , *p.70f*
[103] Jonas (1979) *Jo79* , *p.63ff*

look into the future and, to a certain extent, have to take responsibility today for events that we cannot know whether and how they will occur tomorrow and who exactly could have caused them.

- Hans Jonas' imperative of responsibility thematises human existence in its entirety and in general. Due to the technical possibilities that humans have developed, they have the power to destroy themselves and the earth.
- It is life, the living itself, that has become the focus of responsibility. It is no longer just man with his interests. It is no longer just man who is an end in himself; in the imperative of responsibility nature is also recognised as an end in itself.
- In the event of damage to the environment due to inadequate mining practice, the experts in charge would be "guilty" in terms of the principle of responsibility not only towards their fellow human beings, but towards nature as a whole.
- The distant and future consequences of our actions can no longer be traced back to individual people, but are the result of the uncoordinated actions of countless people. We are dealing with cumulative effects. With regard to the use of algorithms in decision-making processes, the interconnectedness of causal events and subsequent consequences becomes immeasurable.
- But how can a system be held responsible? In simple terms, the answer is: through the steering of design and/or context. For example, one could try to feed ethical aspects into the processes of a system or one could try to steer the system dynamics in a desired direction via legislation or monetary incentives or similar.
- Complex system responsibility is an attempt to provide an answer to the complexity of modern societies with their equally complex social and technological subsystems.
- Each individual mining processional can under certain circumstances exert a great deal of influence in the system, especially if they have access to decisive issues and interfaces.
- When it comes to the question of responsibility, we should also always consider what we cannot be responsible for and what therefore lies within the realm beyond our responsibility.
- It can be wise to refrain from acting rashly and to exercise a well-considered and reflected practical caution in our decisions and actions. This is not to be understood as a foot on the brake of our lives. Rather it should be seen as an

attitude that arises from the knowledge of systemic connections and complex modes of action, whose autonomy - once triggered - can hardly be contained.

- This attitude can serve as an orientation for individual engineers in their specific professional tasks and duties of their everyday work.

1.6.7 Knowledge test - Modern challenges to responsibility

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.


exercise

Task 1.29: The imperative of responsibility

Explain the basic ideas behind a) the imperative of responsibility and b) the concept of system responsibility.

The solution can be found in chapter 6.2 to 6.4

Time to complete approx. 60 min.


exercise

Task 1.30: Practical caution in mining

Please explain why (also and especially) an attitude of practical caution can be important in the area of mining. Can you give an example?

The solution can be found in chapter 6.5

Time to complete approx. 60 min.


exercise

Task 1.31: The fleeting responsibility

Explain why responsibility can be fleeting in modern and complex systems.

The solution can be found in chapter 6.4 / 6.5

Time to complete approx. 40 min.

1.6.8 References - Modern challenges to responsibility


websource

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1.7 VCO - The view on companies and organisations

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Last updated: 2025/04/13

This learning unit discusses the responsibility of organisations, in particular companies. In practice, the term CSR – Corporate Social Responsibility – has become established. The model of core responsibility is presented as a practical guide that can be used to determine the scope and limits of responsibility for each individual company.

Content

Content

1.7 VCO - The view on companies and organisations
1.7.1 Preliminary remarks on the view on companies and organisations

1.7.2 Corporate social responsibility
1.7.3 Core responsibility
1.7.4 Summary -The view on companies and organisations
1.7.5 Exercises - The view on companies and organisations
1.7.6 Knowledge test - The view on companies and organisations
1.7.7 References - The view on companies and organisations


learningobjectives

Learning objectives

After working through this learning unit, you should:

- be able to define CSR in your own words as defined by the European Commission.
- be able to outline and describe the elements of the core responsibility model.
- be able to explain the role of mining in the public discourse.


Outline

Outline

The learning unit begins with an explanation and discussion of corporate social responsibility (CSR). CSR is then discussed with regard to sustainability, business ethics and mining. The model of core responsibility is presented in addition and as an extension. Firstly, the elements are explained and placed in relation to the public discourse. Finally, the role of mining in the public discourse is addressed.

You will need approx. 60 minutes to work through the learning unit and approx. 240 minutes to complete the exercises.

1.7.1 Preliminary remarks on the view on companies and organisations

We spend a large part of our lives in organisations, i.e. in formal structures in which we pursue one or more purposes together with other people. Companies are a prominent example of organisations that generally pursue their goals under economic conditions. The employees of a company pool their skills in and with this specific organisation. This is in order to make a joint effort to contribute to the designated goals. This applies to mining experts as well as other professional groups. Ideally, all areas and employees should work together in such a way that they make an effective contribution to achieving the company's objectives in the best possible way. Economic goals (profits) are of key importance for companies operating in a market economy. However, there are further aspects that are more or less part of the mission of a "good" company and that are

also demanded by society. These are social (societal) and ecological (environmental) aspects that are incorporated into the company's objectives or strategy.

Over the past fifteen to twenty years, the term Corporate Social Responsibility (CSR) has become established as an umbrella term for the measures with which a company or organisation assumes general, social and ecological responsibility.

Ideally, the organization is structured in such a way that its CSR encompasses or permeates all areas of a company. However, depending on its individual understanding of its social and ecological responsibility or its previous development, different aspects of CSR may be focused on. Finally, the sector may also require a particular focus. For example, in a company committed to responsible mining, occupational health and safety and environmental compatibility are likely to be more important than in a global company of the music industry, for example, where diversity concepts may be more of a focus. Responsibility is a high demand placed on companies and their employees, which arises in many facets. In order to be able to meet these demands in business and professional practice, it is also necessary to know to what extent one's own organisation is responsible. The concept of core responsibility helps to determine the scope, and thus also the individual limits, of an organisation's responsibility in order to be able to act in dynamic and complex environments.

The model and concepts discussed in this learning unit condense the previous considerations on responsibility and ethics into the organisational area in which a concept of ethical mining is needed and should be applied. In a specific way, the theoretical foundations and reflections on responsibility in general, but also on the individual responsibility of mining experts, lead to concepts with which companies try to fulfil corporate ethical requirements in their everyday business within the scope of their possibilities.

1.7.2 Corporate social responsibility

Corporate social responsibility – CSR for short – is difficult to grasp, however, as it is neither a specific concept or model nor a specific theory (although this does not mean that CSR has to be theory-free).

Perhaps the growing CSR discussions and activities would be best summarised as a kind of socio-political movement. Here only weakly coordinated actions bring about a political and social upheaval. Those actions are not as violent and spontaneous as a revolution. But they nevertheless gain more and more supporters over time and develop an increasingly binding claim.[104]

example

Such an understanding of CSR activities could then be compared to movements in climate protection or sustainability, for example, which have an influence on people's thoughts and actions and thus gradually bring about social change.

The call for and commitment to CSR could also be understood as a new way of looking at companies.[105] A perspective that no longer focuses solely on the economic factors of corporate management, but also on social and ecological ones. How and in what relationship these different factors relate to each other is (so far) completely open. Perhaps the charm and strength of CSR lies precisely in its openness, under whose umbrella numerous actors and focal points can be found. What characterises all approaches, however, is the question of corporate responsibility; a responsibility that goes beyond the traditional corporate responsibility for the economic success of the company. This shifts the perception of companies as fulfilment agents of the primarily monetary interests of their shareholders towards a network of multidimensional interests of their plural stakeholder groups.

The European Commission understands CSR as "the responsibility of companies for their impact on society".[106] With its claim, it formulated a comprehensive modern understanding of corporate social responsibility in 2011, which can be used to outline the broad spectrum of CSR: "To fully meet their corporate social responsibility, enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders".[107] This expands and modernises its definition from 2001, which delineates CSR "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis".[108][109] In just ten years, the CSR movement has become much more recognised and binding, clearly demonstrating its influence on the economic, social and political spheres.

websource

Further Reading:

European Commission (2011, October 25). COM(2011) 681 final.

[104] Cf. Frese (1971) on the concept of political movement *Fr71 , p.880*
[105] Cf. Schneider (2012) *Sc12*
[106] European Commission (2011) *EU11 , p.6*
[107] European Commission (2011) *EU11 , p.6*
[108] European Commission (2011) *EU11 , p.3*
[109] Commission Of The European Communities (2001) *Co01*

> Communication: A renewed EU strategy 2011-14 for Corporate Social Responsibility.
>
> Reading time 45 minutes

1.7.2.1 CSR and sustainability

With the integration of social and ecological aspects into economic corporate activity, the definition of CSR uses the same three dimensions (environment, society, economy) that guide the idea of sustainable development.[110] The concept of sustainability originally comes from forestry and essentially means that no more trees may be cut down per year than will grow back. In economic terms, this is aimed at preserving capital.[111] If more trees were felled and utilized per year than could grow back in the same time, then we would be living off the substance. This is exactly the case with the extraction of non-renewable or only slowly renewable resources, such as fossil fuels for our energy supply or rare earths, which are necessary for use in our digital devices, for example. In general or in terms of humanity, the idea of sustainable development is about nothing less than ensuring that current generations do not realize their prosperity at the expense of future generations. It is about generational justice.[112]

Due to its origins, the term sustainability is associated with the environment. However, since sustainable, future-oriented development as a whole not only concerns the environment, but also encompasses social and economic dimensions, it is also referred to as the three pillars of sustainability (ecology, economy, society). There therefore appears to be a certain proximity between the concerns and requirements of both CSR and sustainability, which - at least in everyday practice - has led to the terms sometimes being used synonymously. In its initiative “CSR - Made in Germany”, the Federal Ministry of Labor and Social Affairs sums it up: “«Corporate Social Responsibility», or CSR for short, refers to the social responsibility of companies in terms of sustainable management.”[113]

This clearly shows the link between CSR and sustainability and the mining sector. Insofar as the extraction of raw materials is carried out by companies, the question of environmentally friendly, sustainable mining as an essential part of corporate respon-

[110] Cf. Enquete Kommission (1998) *En98 , p.17ff*
[111] Cf. König (2004) *Ko04 , p.58*
[112] Cf. König (2004) *Ko04 , p.220*
[113] Authors’ translation

Original Quote

> Unter "Corporate Social Responsibility" oder kurz CSR ist die gesellschaftliche Verantwortung von Unternehmen im Sinne eines nachhaltigen Wirtschaftens zu verstehen.

sibility is immediately obvious. A basic knowledge of the idea of sustainability and the issue of sustainable development is therefore particularly important for people who work in the raw materials sector and have to take responsibility for their actions. Not least because the idea of sustainability is not only an internal concern of companies, but extends far into social and political spheres, often with global dimensions. Unit 8 therefore deals with the basic terms and concepts of sustainability.

1.7.2.2 CSR and business ethics

CSR is also a subject of reflection in corporate ethics. Here the question of good corporate behaviour is examined under sector-specific aspects and conditions.[114] In other words: CSR also expresses aspects of business ethics, without CSR having to be equated with the concept of business ethics per se. Nevertheless, in the day-to-day practice of professional life in companies, it can certainly occur and also appear intuitively plausible that CSR and business ethics are used synonymously. This is similar to the the synonymous use of CSR and sustainability in the everyday practice of companies. However, it can be assumed that the terminology surrounding CSR has made the much longer-standing and more in-depth concept of business ethics more acceptable in practice (and perhaps also in the science of economics). For many “CSR” sounds much smoother than the unwieldy word “corporate ethics”, which is quickly associated with a raised index finger.[115]

In practice, a synonymous or analogous use of CSR and business ethics does not detract from the presumed socio-political movement that aims to make social responsibility more of an issue for companies. Nevertheless, it should be borne in mind that if business ethics is understood as the ethical reflection and theoretical justification of ethically good actions by companies and their employees, then CSR could be understood as a practical concept or procedure by which a particular company recognizes and assumes its (ethical) responsibility in a (more or less) individual way.

The topics covered by CSR are correspondingly wide-ranging and focus on different aspects of a company's responsibility. Although individual topics, approaches and concepts of the CSR discussion have a general character, they can be examined and discussed against the background of the specific challenges of a particular sector, in our case: mining. This will be done in the following, more concretely application-oriented chapter of this book.

[114] Cf. learning unit 4 DCC - Differentiation in complex reference contexts
[115] Cf. Schmidt (2008) *Sc08 , p.10*

1.7.3 Core responsibility

Organisations, and therefore companies as a special form of organisation, have a social responsibility. The approaches of Corporate Social Responsibility (CSR) as well as the efforts towards sustainability are, on the one hand, an expression of the fact that companies are recognised as having such a responsibility. On the other hand, they are an expression of the fact that companies recognise a responsibility that goes beyond economic success. At least when they implement CSR or sustainable corporate development concepts and processes – be it because of external pressure or because of an inner conviction. The range of issues for which companies are held responsible appears to be immense.

If we add to this the facets of a responsible and sustainable conduct concerning primarily social and ecological issues – such as dealing with child labour in supplier countries or climate protection at national and international sites – then the scope of responsibility seems almost infinite. This in turn can lead to a company being overburdened. However, from a philosophical or ethical perspective, one can also ask how far an organization's responsibility should actually extend and on what grounds we can define appropriate and justifiable limits of corporate responsibility.

1.7.3.1 Necessity of core responsibility

The understanding of a company's core responsibility attempts to address the problem described above. The model of core responsibility offers an approach with which the measures surrounding CSR and sustainability can be placed in an economic and social responsibility context at a normative-strategic level of corporate management and development.

This provides management with an instrument that can be used to determine both the scope and the resulting limits of responsibility for an individual company on a well-founded basis. Specific measures that have been developed and tested in the context of CSR or sustainability discussions (for examples see the second part of this book) can be connected at the operational level without losing sight of the core of responsibility.

The definition of core responsibility gives CSR and sustainability activities a company-specific, reliable point of reference. By defining their specific core responsibility, a framework is created for the otherwise widely ramified responsibilities of companies.

This solves the problem that if you are responsible for everything, you are basically responsible for nothing. Similar to the previously discussed distribution of responsibility among so many stakeholders until the divided responsibility is so small in the end that, figuratively speaking, no responsibility remains for the individual.[116]

On the contrary, boundaries are important: just as the walls of a house form the rooms of the house in the first place and at the same time demarcate them from the outside, the individual core responsibility of a company determines the sphere of the objects for which it is responsible and for which it no longer bears responsibility for good reason. See also Schmidt[117][118] below.

Determining the scope and limits of a corporate´s responsibility is also important for the mining industry. Activities in the raw materials sector are diverse and affect numerous areas of our economic and social life. At first glance, one often associates the environmental aspects of the extractive sector, such as deforestation caused by mining.

example

One example is the deforestation of large areas in the Brazilian Amazon:
Sonter, Laura J. et al (2017).
Mining drives extensive deforestation in the Brazilian Amazon.
Reading time 25 minutes

example

Another example is the contamination of entire ecosystems, such as the death of a river in Zambia after acidic waste leaked from a Chinese-owned mine:
Kille, Richard / Zimba, Jacob (2025).
A river ‘died’ overnight in Zambia after an acidic waste spill at a Chinese-owned mine.
Reading time 10 minutes

However, societal and social issues are also affected. Just think of the changes to the landscape and its impacts on the quality of life of people residing in the vicinity of a mining area. Finally, the possible need to resettle people from a designated min-

[116] Cf. learning unit 5, chapter 4 Types of responsibility
[117] Schmidt (2016) *Sc16 , p.35-52*
[118] Schmidt (2019) *Sc19 , p.47-68*

ing area to a new location can also cause considerable problems for those affected. However also internal issues, such as modern working and safety standards for employees, can challenge a mining company's ethical responsibility. The concept of core responsibility can help to define the sphere of responsibility of an organization, and perhaps even a sector, in a well-founded and resilient manner. This can clarify what an organization is (still) responsible for and, by extension, what it is not (no longer) responsible for.

1.7.3.2 The model of core responsibility

The model of core responsibility takes both an internal (a.) and an external (b.) perspective on the company. In addition, it balances (c.) its responsibility between the resulting self-attributions and external attributions.

Internal self-attribution of core responsibility

Fig. 1.3: Individual self-attribution of core responsibility, authors' translation, adapted from © IUW Berlin

1) Core business

A first central and obvious point of reference for determining the responsibility of a company is its core business. What is the mission of the company? What products or services are created and what do the value creation processes look like? The procurement and sales structures are also functionally linked to the core business, along with the use of resources required for the provision of services.

example

It is easy to see that globally operating mining companies with multiple exploration sites, for example, have a different and bigger field of business than a company providing geological services to mining companies or suppliers of mining equipment. It is

therefore necessary to ask which ethically relevant and possibly critical aspects are at or near the core of the business and which are further away on the periphery of the business.

2) Core impact

A second key point of reference for the responsibility of a company lies in its core impact: Where and how does the company, through its activities or even its mere existence, have an impact in areas that cannot be described as its core business?

example

Consider the supply of raw materials from a company that pursues mining extraction for the processing industries.

3) Core values

Thirdly and finally, but no less relevant, are the core values that are inherent to the company. These values do not necessarily have to be explicitly stated by management; they often operate beneath the surface as informal norms. Knowing and naming the values that you consider important in general and in your business practice and according to which you act consistently would however be ideal in a theoretical sense. Core values are of great importance. After all, the legitimisation of business activities vis-à-vis oneself and others is closely linked to one's own values. The decision whether to operate in sectors that many people consider immoral or at least questionable, for example, shows the importance of values.

example

Whether or not you consider a core business in the arms, tobacco or sex industry to be ethically legitimate is a question of values. And the question of whether, in the mining industry, one just adheres to the legal requirements of the country in which one does business, or whether one exercises a self-commitment that goes beyond this, is also a question of the ethical values on which this behaviour is based.

In their interplay, the core business, the core impact and the core values result in the core responsibility of a company. The core responsibility modelled in this way is characterised from the previous considerations as an individual self-attribution of the company. It is initially its business, its impact and its values that the company uses to determine its own specific responsibility. This is shown in the left half of the following figure.

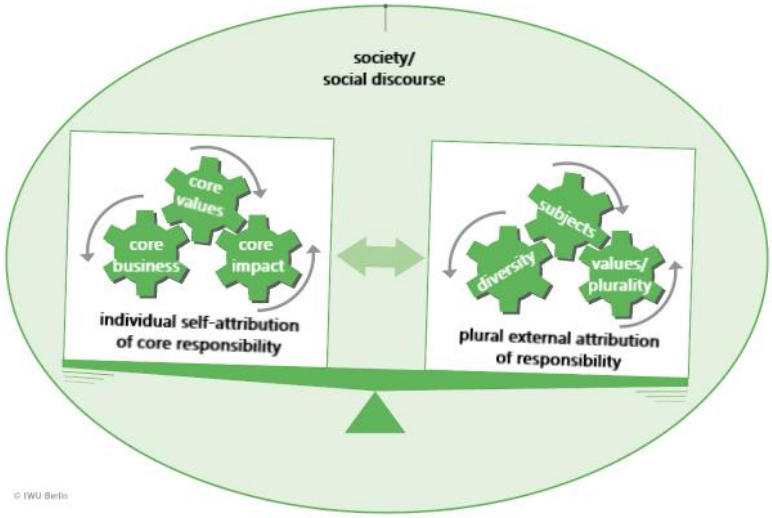

Fig. 1.4: Model of Core Responsibility, authors' translation, adapted from © IUW Berlin

External attribution

Determining one's core responsibility and aligning one's actions accordingly is a first (systematically) necessary, but not sufficient step for a responsible and socially legitimate company. The very word "respon-sibility" refers to the intrinsic dialogical structure of the concept of responsibility.[119] The self-attribution of one's own responsibility is therefore only one side of the coin. The other side is the company's social environment.

The external attribution of responsibility to a company results from its societal environment. This is because a company's environment is not a single or homogeneous actor. Rather, it is a structure of actors with plural and diverse values and demands. In a modern, pluralistic society in particular, the bilateral question-answer relationship that we have become familiar with in the basic structure of responsibility is multiplied and complicated. It is no longer a "prima facie" bilateral personal, but a multilateral anonymous responsibility structure. This means that numerous and different responsibilities are ascribed to the company by actors unknown to it, such as customers, interest groups, politicians and others. They form a set of claims that, that taken together, result in the external attribution of responsibility to the company. This is shown in the right half of the figure:

[119] Cf. learning unit 5, chapter 2 Basic dialogue structure of responsibility

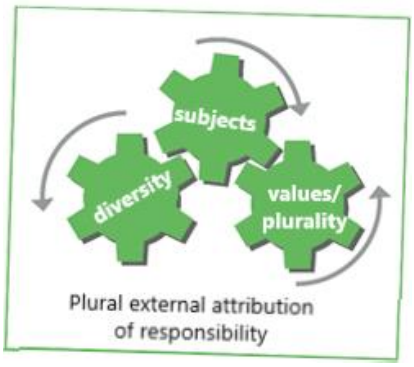

Fig. 1.5: Plural external attribution of responsibility, authors' translation, adapted from © IUW Berlin

Balance between self-attribution and external attribution of responsibility

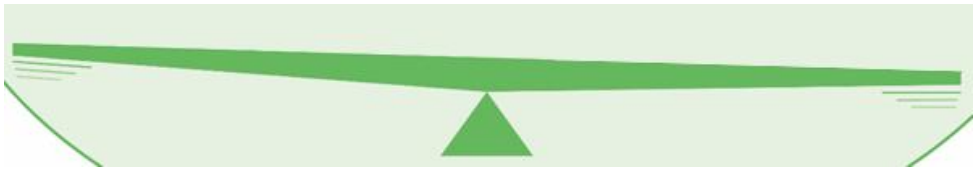

Fig. 1.6: Scale of Core Responsibility, authors' translation, adapted from © IUW Berlin

Self-attribution and external attribution of responsibility take place within the social discourse. Socially virulent and controversial topics are negotiated in this discourse.

example

Currently (as of 2025), these virulent topics include climate change, demographic change, the conflicts in Ukraine and Gaza, the refugee situation and digitalization, to name just a few.

To a certain extent, this discourse is the thematic backdrop in which companies and all of us operate at any given time and to which we (consciously or unconsciously) refer in our decisions and actions.

Within this discourse, the self-attribution and external attribution of responsibility is to be balanced with each other in an argumentative manner. Different ideas about the scope, extent and limits of a company's responsibility are discursively ground against each other and can thus lead to a consensus on the company's core responsibility. As such, discourse is a structuring element of society.

In an ideal sense, social discourse could be described as a non-dominated argumentative debate between the members of a society with the aim of reaching a rational consensus.[120] However, the practice in which companies act and should assume responsibility is not an ideal space in which everyone relies on the normative power of the better argument.

[120] Cf. Prechtl (1996) *Pr96 , p.107*

Under the conditions of a differentiated, pluralistic society, a general consensus is even less likely than it may have been in more traditional societies in the past. It is unlikely that there is a generally accepted correctness or truth.[121] This insight can be applied to responsibility. There will be no generally recognized scope or limit to responsibility. In this respect, the act of balancing between attributing responsibility to oneself or attributing it externally is an open-ended dynamic process that also depends on existing power relations. This also includes the fact that companies can create facts and express values with their products and services. These issues do not verbally but symbolically reflect the company's attitude and thus enter into the debate on the question of responsibility.[122] They become reference points that crystallize the perceived responsibility or – depending on the aspect – the irresponsibility of a company. Seen in this light, the creation of a dynamic balance between internal and external attributions of responsibility is also an act of negotiating the legitimacy of corporate action.

example

Iron ore has been mined in Kiruna for more than 100 years, however now a rare earth deposit has been discovered. In order to exploit this deposit and because subsidence from the local iron ore mine is threatening to swallow the town, parts of Kiruna will have to be relocated. This affects about 6,000 of Kiruna's 18,000 inhabitants. Furthermore, the indigenous Sámi population of the area fear to lose the roaming areas for their reindeer husbandry and thus to compromise their land rights. With its mining activities and future plans the government owned mining company has created facts. In a sense, it is a factual statement in the discourse on environmental and social sustainability and thus on the ethical responsibility of companies.

Video

[121] Cf. Wilhelms (2017) *Wi17*, *p.518*
[122] Cf. Schmidt (2016) *Sc16*, *p.62f*

Will Sweden choose money or tradition?

Deutsche Welle - dw.com (2023, April 22)

Time to watch 5m26s

websource

Rankin, Jennifer (2023, February 5). (theguardian.com).
Article: Why a Swedish town is on the move – one building at a time.

Reading time 10 minutes

Call on the mining industry

Access to the discourse and the opportunity to speak and be heard is a decisive prerequisite for exerting influence.[123]

[123] Cf. Foucault (2007) *Fo07*, *p.26*

example

This is clearly illustrated by the example of the climate debate. It has long been known and scientifically substantiated that the global climate is changing. However, it was only with the student protests of the Fridays for Future movement that a broad social awareness was created that led to political attention.[124]

In the mining sector a number of challenging discourses are ongoing and more can be expected in future, such as the benefits and downsides of the use of AI in mining or even question of social justice that arise from the increasing demand for minerals that are needed for electrification and the generation of renewable energies, among other.[125] This is necessary in order to sound out its responsibility within the company and also for society.

For the mining sector, the model of core responsibility is a call to become actively involved in the social discourse at an early stage. Thanks to its specialist expertise and direct proximity to mining technologies with their potentials and risks, the mining sector can make profound expert contributions to an otherwise abstract discourse on responsibility. The field of responsibility (and ethics) in mining is not yet advanced. This makes it all the more important for mining professionals to deal with ethical issues in a well-founded manner, to be heard in the discourse and to deal with their "own core responsibility", the core responsibility of the mining sector.

A responsible approach in mining concerns us all. Collectively, it is about structuring our society responsibly and making it sustainable for the future. It is therefore up to all of us collectively to decide which standards and rules we impose on ourselves in order to limit or unleash our responsibility. "Ultimately, we are only responsible for what we are held responsible for - by others or ourselves."[126] From the perspective of core responsibility, this applies equally to companies, to areas within the company (e.g. the operations department of a mining company), and to society as a whole in its plurality and diversity.

1.7.4 Summary -The view on companies and organisations

summary

- We spend a large part of our lives in organisations, i.e. in formal structures in which we pursue one or more purposes together with other people.

[124] Cf. Nassehi (2020) *Na20* , *p.34*

[125] See Europäisches Parlament (2022)

[126] Heidbrink (2007) *He07* , *p.182* , authors' translation

Original Quote

Man ist letztlich nur für das verantwortlich, für das man – durch andere oder sich selbst – verantwortlich gemacht wird.

- Over the past ten to fifteen years, the term Corporate Social Responsibility (CSR) has become established as an umbrella term for the measures with which a company or organisation assumes general, social and ecological responsibility.
- The concept of core responsibility helps to determine the scope and therefore also the individual limits of an organisation's responsibility in order to be able to act in dynamic and complex environments.
- The call for and commitment to CSR could also be seen as a new way of looking at companies.
- Due to its origins, the term sustainability is associated with the aspect of the environment. However, as sustainable, future-proof development as a whole not only concerns the environment, but also encompasses social and economic dimensions. This will be elaborated in more detail in the next learning unit 8.
- CSR has arrived in the mining sector and it can be assumed that the integrative connection between the two areas will increase and become closer.
- The core responsibility model provides company management with an instrument that can be used to determine both the scope and the resulting limits of responsibility for an individual company on a well-founded basis. By determining their specific core responsibility, companies are given a framework for their otherwise escalating responsibility.
- The act of balancing the attribution of responsibility to oneself and to others is an open-ended dynamic process that also depends on existing power relations.
- For the mining sector, the model of core responsibility is a call to actively participate in the social discourse at an early stage. Thanks to its specialist expertise and direct proximity to mining technologies with their potentials and risks, the mining sector can make profound expert contributions to an otherwise abstract discourse on responsibility.

1.7.5 Exercises - The view on companies and organisations

Before completing the exercises, please check with your course supervisor whether the submission is required for your location.

exercise

Task:

Select a company. (Note: It can also be the company you work for).

1. Identify its core business, its core impact, its core values.
2. Identify at least one virulent topic from the mining sector that affects the company.
3. Determine what responsibility the company considers itself to have with regard to (2) (self-attribution).
4. Determine what responsibility is attributed to the company with regard to topic (2) (external attribution).
5. Where would you see the company's core responsibility? How do you assess the core responsibility against the background of the social discourse (on the identified topic (2))?

Working time approx. 150 min.

1.7.6 Knowledge test - The view on companies and organisations

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.

exercise

Task 1.34: CSR as defined by the European Commission

In your own words, please describe CSR as defined by the European Commission.

The solution can be found in chapters 7.2

Time to complete approx. 20 min.

exercise

Task 1.35: Elements of the core responsibility model

Outline and describe the elements of the model of core responsibility.

The solution can be found in chapters 7.3

Time to complete approx. 45 min.

exercise

Task 1.36: Mining in social discourse

Explain the role of mining in social discourse.

The solution can be found in chapters 7.3.2

Time to complete approx. 20 min.

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websource

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Rainer Hampp Verlag Munich and Mering.

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Mining drives extensive deforestation in the Brazilian Amazon. (pp. 1013).
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Springer VS Wiesbaden.

1.8 VOS - The view on society – sustainability and mining

by Anna S. Hüncke

Last updated: 2025/08/28

This learning unit introduced the interdependence of mining industry, society and environment which will be detailed out for particular topics in the following chapters. Mining does not operate in isolation. In addition to consumers and other sectors of industry, mining has an impact on a global scale (think of CO2 emissions) as well as on the immediate environment and neighbouring communities where mining takes place. Mining activities characterise the landscape for many years, even after the closure of a mining site. Meanwhile corporate responsibility in the mining sector has gained more and more public interest, not least due to the increasing scarcity of raw materials.

As different and diverse as the mining sector is, the responsibilities attributed to the sector are likely to be just as different and diverse. Here the perspectives of the different stakeholder groups can play a key role. However, also the political requirements for sustainable (and global) development point to the broad and complex spectrum of responsible mining.

Content

Content

1.8 VOS - The view on society – sustainability and mining
1.8.1 An introduction to sustainability and its concepts
1.8.2 Sustainability concepts
1.8.3 Advanced concepts of sustainability
1.8.4 Sustainable development
1.8.5 Environmental, social and corporate governance (ESG)
1.8.6 Summary - The view on society – sustainability and mining
1.8.7 Knowledge test - The view on society – sustainability and mining
1.8.8 References - The view on society – sustainability and mining

learningobjectives

Learning objectives

After working through this learning unit, you should be able to

- name and explain different concepts of sustainability
- describe and explain the different steps that led to sustainable development
- explain the relevance of environmental, social and corporate governance (ESG) especially for mining
- recognise and reflect on the importance of mining in the context of socio-ecological transformation.

Outline

Outline

This learning unit begins by elaborating on the notion of sustainability and corresponding models, like the 3 pillars model that was already introduced in the previous learning unit. Other models include the three nested dependency model, weak and strong sustainability. Furthermore recent concepts like circular economy and doughnut economy are introduced. Then the concept of sustainable development and its predecessors is explained. the relevance of environmental, social and corporate governance (ESG) especially for mining is discussed. Finally, approaches of the mining industry with regard to the socio-ecological transformation are exemplified.

websource

Further reading:

Sieger, Johannes / Lottermoser, Bernd G. (2024).
Chapter 3: Sustainable development and mining .

> In Lottermoser, Bernd G. / Sieger, Johannes /Tost, Michael (Ed.),
> *Mixed Reality Handbooks for Mining Engineers – Volume 1. Part I – Sustainability in Mining. Part II – Mine Planning*. (pp. 30-106). Leykam.

1.8.1 An introduction to sustainability and its concepts

Sustainability has become a widely recognised buzzword. Nevertheless, it is associated with different conceptual understandings, depending on who is talking and in what context. Therefore, the following descriptions are linguistic reference points from which a differentiated understanding of what could be meant by "sustainability" can emerge. Furthermore the outlined concepts are complementary, not alternative issues.

Following Jacobus A. Du Pisani[127], “the term ‘sustainability’ was first used in German forestry circles by Hans Carl von Carlowitz in his Sylvicultura Oeconomica in 1713. Carlowitz suggested nachhaltende Nutzung (sustainable use) of forest resources, which implied maintaining a balance between harvesting old trees and sustainable development”. This was after Georg Agricola, a German mining engineer, described the negative impacts of woodcutting and mining for the environment. Carlowitz, also a mining professional, was worried about the impact the demand for wood in the mining and other industries had for society. The exhaustibility of extracted raw material came more into focus in the 19th century when concerns were raised that coal deposits were not renewable and would soon be depleted if the high consumption of coal did not stop.[128]

[127] Du Pisani (2006) *Du06 , p.85-86*
[128] Du Pisani (2006) *Du06 , p.86*

Video

Med. 1.11: Von der nachhaltenden Nutzung - Ein fiktives Interview mit Hans Carl von Carlowitz

YouTube – Forstwirtschaft in Deutschland

Time to watch 5m26s

1.8.2 Sustainability concepts

The three pillars of sustainability

The conceptualisation of sustainability as 'three pillars' – ecological, economic, and social – has gained widespread recognition. The pillars are regarded as balancing force between equally desirable goals within these three categorisations.

However, the three-pillar concept is not universal, as some authors add institutional, cultural, or technical pillars.[129]. This goes hand in hand with the criticism that in the dominant three pillar model economy is presented as a separate pillar, whereas culture and politics are not.[130]

[129] Cf. Purvis et al. (2019) *Pu19* , *p.685*
[130] Spogagafa (2024) *Sp24*

Video

Med. 1.12: The Three Pillars of Sustainability and How they Impact our Everyday Lives!

YouTube – SustainablyAware

Time to watch 4m10s

Fig. 1.7: The three pillars of sustainability

The three overlapping circles of sustainability

Following this concept, the areas of ecology, social affairs and economy are located in circular dimensions that partly overlap each other. Only at the centre of the intersections sustainable development is fully achieved. Thus, it cannot be achieved if the focus is only on one or two of the dimensions. In fact, sustainable development can only be achieved if all dimensions work together.[131]

[134] Spogagafa (2024) *Sp24*

Fig. 1.8: The three overlapping circles of sustainability

The three nested dependency model of sustainability

According to this integrative model, an intact ecology forms the basis for a functioning society. The model sees economy as a subsidiary of society, and society as a subsidiary of the environment. Thus, the concept of "nested dependency (...) illustrates the co-dependent relationship within the social and economic spheres and the governing role the environment enjoys in sustaining the human subsystems".[132]

[132] Lein (2016) *Le16 , p.10*

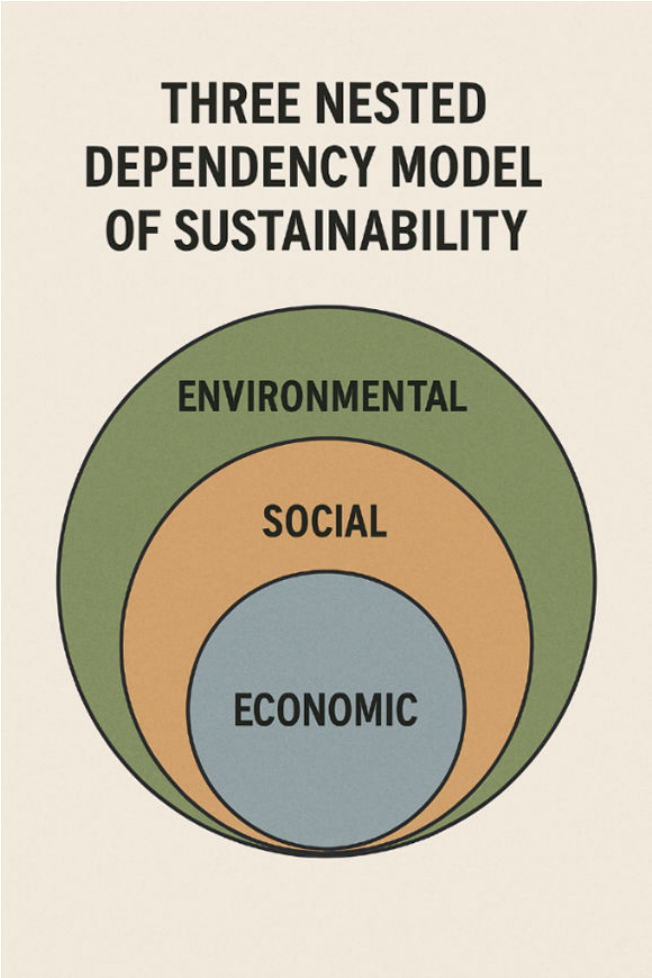

Fig. 1.9: The three nested dependency model of sustainability

websource

Further reading:

University of Waterloo (n.d.).

Ways of framing sustainability.

websource

Further reading:

Willard, Bob (2010, July 20).

3 Sustainability Models.

Sustainability Advantage.

exercise

Task 1.37: The three nested dependency model of sustainability

Compare the nested dependency model and the three pillars model and elaborate on the following question:

Why does the economy receive a relative upgrade in comparison to the environment in the three pillars and how does this differ from the relation between economy and environment in the nested dependency model?

Time to complete approx. 30 min.

Weak and strong sustainability

Weak sustainability

The concept of weak sustainability assumes that natural capital can be substituted with human-made capital, such as technology or infrastructure, so that the overall capital stock can be maintained for future generations. The approach follows the principle of "non-declining utility over time".[133] Focusing on economic growth and human welfare, it allows for trade-offs between environmental degradation and development as long as total capital remains constant. This relies on the belief that technological advancements can mitigate natural resource depletion or environmental harm. In contrast, critics argue that the concept underestimates the unique value of natural systems and therefore often link it to mainstream economic models (such as neoclassical approaches) prioritising short-term gains. Unlike, for instance, the above mentioned three pillars model which emphasises equitable integration of all three dimensions, weak sustainability allows for trade-offs that can undermine ecological integrity.

Strong sustainability

The concept of strong sustainability emphasises the unique value of natural capital, asserting that human-made capital cannot fully substitute for ecosystem services and natural resources. It prioritises the preservation of critical natural systems, like biodiversity and climate systems, for future generations, viewing them as irreplaceable. Consequently, economic activities have to operate within ecological limits, avoiding depletion or degradation of natural systems. The approach advocates for systemic changes to reduce resource extraction and pollution and thus does not necessarily follow an anthropocentric concept but rather assigns a moral value to nature itself.[134]

[133] Ott (2020) *Ot20 , p.9*
[134] Ott (2020) *Ot20 , p.11*

Strong sustainability contrasts with weaker sustainability models by rejecting the idea that technology or wealth can fully compensate for environmental losses. However, also differently to the nested dependency model, which explicitly structures the three dimensions in hierarchical dependency, strong sustainability focuses on ecological limits without defining this hierarchy.

1.8.3 Advanced concepts of sustainability

Circular economy

Text adapted and shortened from the European Parliament (2023):[135]

Circular economy is a model of production and consumption based on three key aspects:[136]

- design out waste and pollution
- keep in use products and materials
- regenerate natural systems

This involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. When a product reaches the end of its life, its materials are reused within the economy wherever possible and waste is reduced to a minimum by recycling. This is a departure from the traditional, linear economic model, which is based on a take-make-consume-dispose pattern of extracting natural raw materials. The latter model relies on large quantities of cheap, easily accessible materials and energy and the maximising of profits.

The following graphic illustrates the differences between the traditional economic model, the interim model of reusing materials and the approach of circular economy:

[135] European Parliament (2023) *Eu23a*
[136] Ellen MacArthur Foundation (2024) *El24*

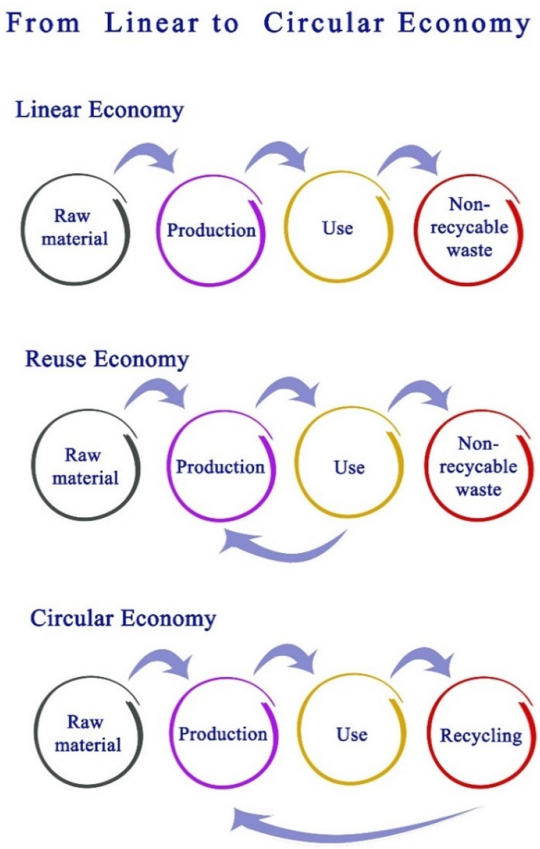

Fig.:

Reusing and recycling products slows down the use of natural resources, reduces the disruption of the habitat and helps to limit the loss of biodiversity. Another benefit from circular economy is a reduction in total annual greenhouse emissions, as according to the European Environment Agency industrial processes and product use are responsible for 9.1% of the EU's greenhouse gas emissions. Also creating more efficient and sustainable products helps to reduce energy and resource consumption. It is estimated that more than 80% of a product's environmental impact is determined during the design phase.

The world's population is growing and with it the demand for raw materials. However, the supply of crucial raw materials is limited. Finite supplies also mean some EU countries are dependent on other countries for their raw materials. Recycling raw materials mitigates the risks associated with supply, such as price volatility, availability and import dependency. This applies, for instance, to critical raw materials, needed for the production of technologies that are crucial for achieving climate goals, such as batteries and electric engines.

Video

Repair, re-use and recycle!

European Parliament - Multimedia Centre (2018, April 9)

Time to watch 1m13s

websource

Further reading:

European Parliament (2023).

Circular economy: definition, importance and benefits.

exercise

Task 1.38: Circular Economy

What steps are being taken in the EU to promote circular economy? What role do finite resources extracted through mining play in this?

Time to complete approx. 30 min.

websource

Further reading:

Sieger, Johannes / Lottermoser, Bernd G. (2024).

Chapter 4: Mining in a circular economy .

In Lottermoser, Bernd G. / Sieger, Johannes /Tost, Michael (Ed.),

Mixed Reality Handbooks for Mining Engineers – Volume 1. Part I – Sustainability in Mining. Part II – Mine Planning. (pp. 107-117). Leykam.

What does circular economy have to do with mining?

There is little doubt that resources should be used sustainably. From a circular economy point of view, the focus is on saving and recycling resources and on reducing the rates of new raw materials to a minimum.

Mining is a key industry when it comes to sustainability issues and has a high potential for circular economy: On the one hand, mining professionals are product and service users at the local mine site, e.g. when they are engaging with technical operations and use physical infrastructure or equipment.[137] On the other hand, mines stand at the start of the supply chain for mining products when extracting raw materials and are thus part of the upstream flow of the global mining economy.

Concerning the latter, from current estimates the demand for primary materials is likely to increase at least two-fold over the next few decades until 2060.[138][139][140] This is not least due to a higher demand from technologies important for the green transition.[141][142] Currently most raw material is still gained from primary sources on mining sites (also termed virgin mining). An alternative is to generate raw material from recycling (urban) waste (urban mining). However, while in the mid- to long-term it may be possible to regain more raw material from recycling, for many raw materials this technology is still not fully developed and there is limited availability of secondary material.[143] Furthermore, partly industries consider recycling more cost intensive than the extraction of raw materials.[144][145]

[137] Krause / Kretschmann (2023) *Kr23 , p.574*
[138] Cf. McCarney et al. (2021) *Mc21 , p.3*
[139] ICMM - International Council of Mining and Metals (2023) *IC23 , p.1*
[140] Aramendia et al. (2023) *Ar23 , p.1*
[141] Krause / Kretschmann (2023) *Kr23 , p.574*
[142] Cf. McCarney et al. (2021) *Mc21 , p.17*
[143] Zeng et al. (2022) *Ze22*
[144] Cf. McCarney et al. (2021) *Mc21 , p.19, 29*

McCarney et al. [146] hold that circular economy should rather integrate the issues of upstream supply chain of mining products instead of predominately focusing on the processing industries and consumers of mining products. In fact, this shift in focus may provide "incentives for primary producers" to include circular economy approaches more into their mining drilling and extraction activities but also in their product and service use.

However, it is important to ensure that continuing to extract raw materials does not mean to "do business as usual". Instead, from a sustainability perspective, their extraction should become limited to the cases where it is necessary, i.e. that there is no better way to advance the reduction of emissions or to achieve other goals of sustainability. In fact, raw materials from secondary material are so far insufficiently available to enable the widespread development of renewable energies (Hund et al 2020:7).[147] Here, raw materials from primary resources may be the only viable source. A current prominent example is lithium for batteries to store energy from solar panels or wind turbines.

Proponents of a shift from traditional linear economy may regard circular economy as "as a pragmatic stepping-stone" for economic activities to contribute "to reach[ing] the Doughnut Model". This model may be described as a holistic interplay of environmental and social thresholds viable for a contemporary and future sustainability of the world we live in.[148][149]

Doughnut economy

The doughnut economy is an economic model that is embedded in society and the environment. The outer crust of the doughnut represents the planetary boundaries or the environmental ceiling which must be protected in order to guarantee a good life for current and future generations. Hence, e.g. climate change, land conversion and the loss of biodiversity (vide: arrow overshoot) must be halted.

The hole in the centre of the doughnut represents the space for people who do not have access to the essential social foundations of life such as education, health care, social equity, housing (vide: arrow shortfall).

The spot in between the outer and inner circle represents the space where everybody is enabled to live a good life below the planetary boundaries.[150]

[145] While this may be true for certain raw materials, according to a recent study, recycling of copper and aluminium is less costly than extracting raw materials [Zeng et al. (2022) *Ze22 , p.104* .
[146] McCarney et al. (2021) *Mc21 , p.22*
[147] Hund et al. (2023) *Hu23 , p.7*
[148] TEK Refresh (2021) *TE21*
[149] Cf. Jonstrup (2023) *Jo23*
[150] TEK Refresh (2021) *TE21*

The area beyond 'the safe and just space of humanity' represents the section where people transcend the boundaries of the planet.

In this context successful economic activity is understood as balancing protection of the key ecological systems of the planet with achieving social wellbeing and quality of life for everybody. Here, economy is not a separate dimension. Rather, it is a factor that can generate future viability as an integrative aspect of sustainability.

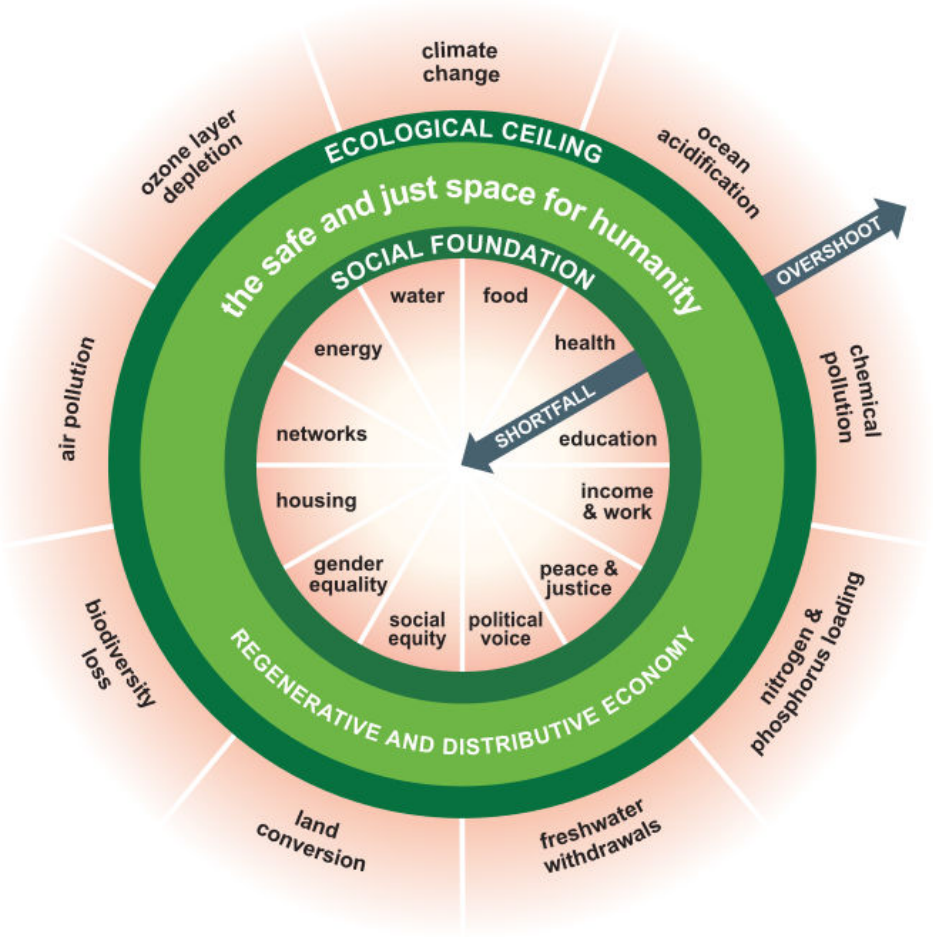

Fig.:

Following Kate Raworth[151], who first introduced the model, sustainability can be achieved by a change of consumption and production patterns. Raworth suggests that the model provides a chance to rethink economic development. Instead of putting economic growth first, it is about ensuring human rights and living within the limits of planet earth. The question then is: Which kind of economic system would make it possible to achieve these goals?

websource

[151] Cf. Raworth (2017) *Ra17*

Further reading:

Raworth, Kate (2020).

About Doughnut Economy .

Doughnut Economics Action Lab.

Video

Med. 1.13: What is Doughnut Economics? with Kate Raworth

YouTube – Ross Harrison

Time to watch 1m35s

Tool

Interactive open access tools Doughnut economics action lab tools which allow exploring how different stakeholders can get engaged in pursuing actions suggested by the doughnut economy.

1.8.4 Sustainable development

Sustainability and sustainable development are interconnected concepts that have evolved over time. According to UNESCO, "Sustainability is often thought of as a long-term goal (i.e. a more sustainable world), while sustainable development refers to the many processes and pathways to achieve it."[152] The goal of sustainable development is to balance economic needs, environmental protection, and social well-being in a way that meets the needs of current and future generations without undermining planetary integrity.[153][154] The Brundtland Report emphasizes that special attention must be given to the needs of the world's poor, as they are the most vulnerable to environmental and economic instability.

Similar to the models on sustainability described above, sustainable development focuses on the interconnections between the environment, society, and economy. By fostering a society where living conditions and resources support human well-being without exceeding ecological limits, sustainable development is intended to strike a balance between economic growth, environmental protection, and social equity and to ensure that current and future generations can meet their needs.

The Sustainable Development Goals (SDGs) of the United Nations from 2015 comprehensively address sustainability in its social, environmental, and economic dimensions. Their predecessor, the Millenium Development Goals (MDGs) from 2000 already referred to the necessity to protect the environment but did not pursue such a holistic approach as the SDGs.

1.8.4.1 Predecessors to the SDGs

The Club of Rome

A significant milestone in shaping sustainability thinking was the work of the Club of Rome, a global think tank founded in 1968. It brought together leading scientists, economists, and policymakers to discuss global challenges. One of its most influential contributions was the publication of The Limits to Growth, which explored the consequences of uncontrolled economic and population growth on finite planetary resources.[155] The report highlights the risks of overconsumption and environmental degradation, reinforcing the necessity of long-term planning and a transition toward a sustainable, equitable world. While some of the report's estimates took effect, for

[152] UNESCO (2012) *UN12*
[153] United Nations General Assembly (1987) *Un87a*
[154] United Nations General Assembly (1987) *Un87b*
[155] Meadows et al. (1972) *Me72*

instance, that certain raw materials have become scarcer and that climate change and the loss of biodiversity has increased strongly, other predictions did not prove true, e.g. the collapse of the resource oil or the uncontrolled population growth.

Video

Med. 1.14: The Origin of 'Limits to Growth' - Interview with Dennis Meadows

YouTube – VolkswagenStiftung

Time to watch 6m1s

The Club of Rome's insights helped shape discussions on sustainability, contributing to the Brundtland Report (1987) and later the SDGs. The Club's emphasis on planetary boundaries, systemic thinking, and the need to move beyond GDP-driven economic models aligns closely with the SDGs' objectives, particularly those addressing climate action (SDG 13), responsible consumption and production (SDG 12), and biodiversity protection (SDG 15).

In its recent Earth4All report, the Club of Rome states: We see today that ideologies based on constant growth cannot bypass the material limits of our planet. We have already exceeded six of the nine planetary boundaries that sustain life on Earth. On some of these planetary boundary issues mining activities can have an influence.

This includes influences such as on land-system change when forests are cleared respectively on biosphere integrity when forest rehabilitation takes place.

Video

Med. 1.15: The Planetary Boundaries and what they mean for the Future of Humanity

YouTube – BAFU OFEV UFAM FOEN

Time to watch 5m9s

The Earth Summit

The Earth Summit, officially known as the United Nations Conference on Environment and Development (UNCED), was held in Rio de Janerio, Brazil, from June 3 to 14, 1992. It was a landmark international conference that brought together representatives from 178 countries to discuss global environmental issues and sustainable development. The conference put sustainable development on the agenda as global priority and developed the Agenda 21, the first action plan for sustainable development on the local, national, regional and international scale. The plan covered topics like poverty, health, deforestation, and pollution and focused on integrating environmental protection with social and economic development. In addition, the Convention on Biological Diversity and the Global Warming Convention were agreed.[156][157] During the 20th anniversary

of the Earth Summit, the Rio +20 in 2012, the need for structured governance mechanisms and a renewed framework was emphasized, which ultimately led to the SDGs.

websource

Further reading:

United Nations Sustainable Development (1992).

Agenda 21.

United Nations Conference on Environment & Development Rio de Janerio, Brazil.

1.8.4.2 From Limits to Growth to the Millennium Development Goals (MDGs) and to the Sustainable Development Goals (SDGs)

Developed in 2000, the MDGs set targets by 2015 concerning human development with a focus on developing countries. One of its eight targets was to "ensure environmental sustainability".[158] However, the SDGs put even more emphasis on sustainability and climate issues and took a universal scope with altogether 17 goals, developed in a participatory process. Adopted by 193 – almost all – UN member states in 2015 as part of the UN 2030 Agenda for Sustainable Development, the SDGs show a broad consensus and hence are of great significance.

Fig.:

[156] Cf. United Nations (2024) *UN24*
[157] Cf. Encyclopedia Britannica (2023) *En23*
[158] United Nations (no date) *UNnd*

The mining industry is particularly relevant to the SDGs. Here are some examples: SDG 8 (Decent Work and Economic Growth) is important as working conditions in a global set-up often do not follow the same standards of fairness in all areas of activity and as work safety issues are of particular concern for the sector. Further the industry "generates significant economic multipliers through local procurement and contributions to GDP, particularly in resource-dependent economies"[159] like many developing countries in the global South. SDG 12 (Responsible Consumption and Production) is key to mining as the goal points among others to the need for an enhanced waste management, including recycling and reuse, to minimize environmental harm. "Mining provides essential materials for modern life but also generates substantial waste. Increasing recycling rates and advancing a circular economy for metals requires collaboration across the entire value chain".[160] SDG 13 (Climate Action) is a balancing act for the sector as on the one hand it contributes to creating a bigger carbon foot print as long as fossils like lignite continue to be extracted but as on the other hand the industry plays a key role in reducing greenhouse emissions by providing the raw materials it takes to foster renewables. Additionally, SDG 15 (Life on Land) is a factor mining can have a significant impact on. While e.g. from open cast mining activities land degradation is a negative effect, rehabilitation of former mining sites can mean a major contribution to biodiversity . This is why it is important that every mining endeavour has a rehabilitation plan before mining activities commence.

Video

Med. 1.16: Do you know all 17 SDGs?

[159] ICMM - International Council of Mining and Metals (no date) *IC25a*
[160] ICMM - International Council of Mining and Metals (no date) *IC25b*

YouTube – United Nations

Time to watch 1m24s

websource

Further reading:

UNDP (2016).

Mapping Mining to the Sustainable. An Atlas.

World Economic Forum Cologny/Geneva.

exercise

Task 1.39: From Limits to Growth to the MDGs and to the SDGs

Watch the video or look at the UNDP paper, then take two other SDGs than those presented above as examples and explain why and how they are relevant for mining.

Time to complete approx. 40 min.

To be sure both, MDGs and SDGs, focused on more concrete policy objectives compared to the former theoretical sustainability discussions: While the Club of Rome took an analytical, systems-based approach, and while the Earth Summit with its Agenda 21 provided political commitments and practical frameworks for voluntary action, the MDGs and later the Agenda 2030 with the SDGs came up with concrete quantifiable goal-oriented measures. Still, in essence they all echoed the recognition that achieving sustainability requires systemic transformation. As emphasized in Earth4All: "True progress requires an understanding of and adaptation to the complex interplay of economic, ecological, and social systems".[161]

But how do the theoretical sustainability frameworks and the global framework of SDGs translate for companies? Let's take a closer look at this in the next section.

[161] Dixson-Declève et al. (2022) *Di22*

1.8.5 Environmental, social and corporate governance (ESG)

Fig.:

The emergence of ESG

The previous learning units 7.1: Preliminary remarks on the view on companies and organisations and 7.2: Corporate social responsibility have already discussed how CSR can help to view companies not only in terms of their economic performance, but also in terms of their social and ecological commitment. In this sense, CSR can overlap with sustainability models and the SDGs, particularly regarding corporate actions.

To encourage businesses worldwide to adopt sustainable and socially responsible policies, the UN Global Compact was launched as a voluntary initiative in 2000. It is based on ten universal principles in areas like human rights, labour, environment, and anti-corruption and marked one of the first major efforts to formally involve the private sector in global sustainability.

There is a video at this point on the website.
https://ethical-mining.eduloop.de/loop/Environmental,_social_and_corporate_governance_(ESG)

Med. 1.17: ESG in Mining: An Exploratory Categorisation

In 2004, together with major financial institutions, the UN Global Compact issued a report titled "Who Cares Wins"[162], where it introduced and defined the notion of ESG as “emphasising the importance of environmental, social, and governance factors in investment decisions”.[163] This was when the concept gained global prominence for the first time.

[162] UN Global Compass (2004) *UN04*

The SDGs help to integrate and highlight companies' engagement in ESG issues as they represent the first global UN goals that holistically address the contributions of all stakeholders, including businesses. ESG frameworks provide companies and investors with practical tools and metrics to assess how corporate activities contribute to or impact the SDGs. For example, carbon emissions (E), labour practices (S), and board diversity (G) directly relate to SDG targets. Thus, since the early 2000s the ESG movement has grown from a UN CSR initiative into a global phenomenon. For instance, while in 2006 "63 investment companies (…) with US$6.5 trillion in assets under management (AUM) [were] incorporating ESG issues"[164], following the Global Sustainable Investment Alliance (2023:5), "$30.3 trillion (...) [had been] invested globally in sustainable investing assets"[165] in 2022.

Video

Med. 1.18: What is ESG? Introduction to Environmental, Social and Governance

YouTube – Study Academy | The e-Learning Experts

Time to watch 4m7s

[163] Pajot (2023) *Pa23*
[164] Walker (2022) *Wa22*
[165] Global Sustainable Investment Alliance (2023) *Gl23* , *p.5*

websource

Further listening: Podcasts about ESG and Mining

MSCI (2021, December 10).

We need miners and cheap drugs. Episode 161.

Time to listen 21m

Sustainability Leaders (2021, March 16).

The Evolution of ESG in Mining. Episode 33.

Time to listen 31m

In Depth

Examples: What does the mining sector do itself?

Mining Principles – a global initiative

The International Council of Mining and Metals (ICMM) promotes responsible mining through its 10 Mining Principles . "They set good practice environmental, social, and governance requirements for company members through a comprehensive set of performance expectations and related position statements. Their implementation supports global targets, including the UN Sustainable Development Goals and the Paris Agreement on climate change. By incorporating robust site-level validation and credible assurance of corporate sustainability reports, our Mining Principles aim to maximise benefits for host communities while minimising negative impacts and addressing societal concerns."[166] For the ICMM it is important that these principles apply over the whole mining life cycle.

Further reading:

ICMM (no date). Responsible Mining.

[166] ICMM - International Council of Mining and Metals (no date) *IC25c*

Further reading:

Sieger, Johannes / Lottermoser, Bernd G. (2024).

Chapter 3: Sustainable development and mining .

In Lottermoser, Bernd G. / Sieger, Johannes /Tost, Michael (Ed.),

Mixed Reality Handbooks for Mining Engineers – Volume 1. Part I – Sustainability in Mining. Part II – Mine Planning. (pp. 48-50). Leykam.

Towards Sustainable Mining – an Example from Canada

The Canadian mining industry initiative Towards Sustainable Mining (TSM) describes itself as supporting „mining companies to turn high-level environmental and social commitments into action on the ground. At the same time, it provides communities with valuable information on how operations are faring in important areas, such as community outreach, tailings management and biodiversity. Participation in the TSM initiative is mandatory for all MAC members for their Canadian operations."[167]

1.8.6 Summary - The view on society – sustainability and mining

summary

- Origins of "Sustainability": In 1713, Hans Carl von Carlowitz introduced "sustainable use" in forestry, balancing timber harvest with forest regeneration.
- Sustainability frameworks:
  - Three-Pillar Model: Sustainability is commonly framed around three equal goals—environmental, economic, and social.
  - Overlapping Circles: True sustainability lies only at the intersection of all three dimensions.
  - Nested Dependencies: Environment underpins society, which in turn supports the economy.
  - Weak sustainability allows substituting natural with human-made capital, while strong sustainability sees nature as irreplaceable and prioritizes ecological limits.
- Advanced sustainability frameworks:

[167] The Mining Association of Canada (no date) *Thnd*

  - Circular Economy: Eliminate waste, keep products/materials in use, and regenerate natural systems.
  - Doughnut Model: Ensure a safe space between social foundations (inner ring) and planetary boundaries (outer ring).

- Role of Mining: Mining sits at the start of supply chains (primary extraction) and is also a major user of resources—offering opportunities for urban mining and recycling.
- Sustainability vs. Sustainable Development: “Sustainability” is the long-term goal; “sustainable development” refers to the processes (e.g., Brundtland definition, SDGs) to achieve it.
- ESG: The UN Global Compact and the Who Cares Wins report helped shift CSR toward measurable ESG practices, which today enable companies to align their sustainability efforts with the UN SDGs and demonstrate impact through clear metrics.

1.8.7 Knowledge test - The view on society – sustainability and mining

You will find the solutions to the following exercises within this learning unit. Try to complete the exercises independently before looking up the solution.

Task 1.40: Societal relevance of sustainability

Explain the societal relevance of sustainability.

Time to complete approx. 20 min.

Task 1.41: Understandings of sustainability

Name and explain different understandings of sustainability.

Time to complete approx. 30 min.

Task 1.42: Sustainability in mining

Explain the importance and necessity of sustainability in mining.

Time to complete approx. 20 min.

exercise

Task 1.43: The different positions from an ethical point of view concerning sustainability in mining

Professionals of the state-owned Swedish mining company LKAB argue that the mining activities in Kiruna contribute to the green transition as the rare earths are needed for this. In contrast representatives of the indigenous Sámi counter that instead of excavating new rare earth the recycling rate of rare earth should be improved and that the mining activities are destroying the local biological habitat and compromising Sámi's land rights.

Watch the following report and read the following article. Then discuss the different positions from an ethical point of view concerning sustainability in mining.

Time to complete approx. 50 min.

Video

Deutsche Welle (2023, April 22). (dw.com.)
Will Sweden choose money or tradition?

Time to watch 5m26s

websource

Rankin, Jennifer (2023, February 5). (theguardian.com).
Article: Why a Swedish town is on the move – one building at a time.

Reading time 10 minutes

exercise

Task 1.44: Circular economy and doughnut economy

Discuss the following statement on the backdrop of circular economy (and the doughnut economy) by providing pros and cons concerning the approach presented:

"Most things needed for a sustainable future – wind turbines, solar panels, electric vehicles – are metals-intensive. In the right conditions, metals have the potential to be recycled almost indefinitely but recycling alone will not provide enough materials to meet demand. (...) [However primary supply will likely double] even with improved recycling rates. With this knowledge, we must recognise that there is need for a new understanding of the circular economy; one that is not just focused on materials already in the supply chain but is instead sensitive to both the ways materials are produced and how they are then consumed. For the mining and metals industry this means looking beyond efforts to prevent metals becoming waste to including steps that ensure that these materials are extracted and managed in the right way".[168]

Time to complete approx. 30 min.

1.8.8 References - The view on society – sustainability and mining

websource

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2 Empirical cases

Content

Content

2 Empirical cases
2.1 Averkios Gaitanis on Ethical Mining and the Future of the Greek Island Milos
2.2 Activist Nolo on Mining and the Future of Hambach Forest near Jülich, Germany

2.1 Averkios Gaitanis on Ethical Mining and the Future of the Greek Island Milos

> **Mining has always been here and should be treated as part of our heritage.**
>
> *Averkios Gaitanis*

The interview was edited by Sören E. Schuster, Matthias Schmidt and Anna S. Hüncke

Last updated: 2025/10/07

On April 25, 2025, a group of interdisciplinary researchers from Germany met with Averkios Gaitanis – former deputy mayor of Milos, entrepreneur, and government official. As part of a project on Ethical Mining, the researchers were developing a case study on the Greek island, which not only has a mining history dating back to the Stone Age but is also experiencing a substantial rise in tourism. In a sunny café at the port of Adamas, the island's largest town, Gaitanis shared insights into how mining and tourism are perceived on Milos and offered his outlook on what the future might hold.

Q: Mr. Gaitanis, you were born on Milos and, aside from ten years spent abroad, you've lived your entire life here. The changes you've witnessed over the past decades must have been substantial. Based on your experience, what would you say has changed the most on the island?

Generally, the values among people have changed. Fifty years ago, human relationships were different. Today, people mostly care about money and appearances. You can see this trend unfolding every day, and I believe it will only get worse. People orient their work and lives towards money. Changes to the landscape, like new buildings or infrastructure, could perhaps be reversed. They are not permanent. But once values change, you cannot undo that.

Q: How was it before these changes happened? What did people value back then?

We had a strong sense of community. Thirty years ago, we did not have to lock our houses and cars. Everyone respected each other's property. That no longer works today, because many outsiders came to the island. People move to different places – that's how development happens, it's perfectly normal. But it also impacts the security and the overall balance of a community that is affected by these changes. Instead of looking out for the community, people desire money which symbolizes success. But money can also corrupt. It's a double-edged sword, it is not bad in itself. Sometimes it does good, but it can also do harm.

Q: Would you say there are already too many tourists on the island?

Yes, the number is already high, a lot has changed in just a few years. If you look at Santorini, you can get an idea of where this development is leading. Many investors are buying land on Milos now. They purchase property and plan constructions that didn't seem possible – and desirable – ten years ago. Back then, we didn't have big companies coming here. That's a big change that you can also see in the prices of property, which are now in the millions. You can see it in everything, even in the people.

Q: Do you think tourists influence the island? And how does tourism in genereal relate to the mining industry?

Tourism itself is nothing new here, although mining started much earlier, more than 11,000 years ago. A large community on this island benefitted from mining since the very beginning. Over the years, after tourists began to visit Milos, a certain balance between mining and tourism developed. Now, tourism brings more people and money, but it's hard to know how much exactly. Unlike mining, tourism involves a lot of informal income, for example through Airbnb. Much of it isn't recorded, which makes comparisons difficult. When tourism is too intense, it becomes a burden, especially if we look at sustainability.

Q: That balance between mining and tourism – it doesn't exist anymore today?

It's easy to blame one side when something goes wrong. But we need to acknowledge that balance is complex. Forty years ago, there was a loading and unloading zone for minerals in Adamas, not far from where we sit right now, and large trucks passed through all the time. But then, an industrial port was built outside of Adamas and made space for tourism. This was the kind of the balance that allowed both sectors to coexist. People are busy in both sectors right now and the island has changed. You can see it in the techniques of mining, which was done manually first. Machines only came in during the last century and drastically changed the landscape. Have you visited the main mining area, where the large-scale operations happen?

Q: Yes, and we saw that the changes to the landscape brought by mining can also be an attraction for tourists. It could add value to the tourism sector as well. Is that correct?

It's difficult in Greece because of outdated laws and bureaucratic challenges. Things move slowly, and it can feel quite absurd at times. Are any of you from Central Germany? Near Hamburg, they have a large technical museum. We have plenty of similar resources here, but we don't promote them like they do in Hamburg. These places in Germany attract hundreds of thousands of visitors just for technology tourism. Such a model could not work here – not because it's a bad idea, but because the system doesn't support it. No one cares enough. Decision-makers don't even know where Milos is. They only react if someone from central government calls them and their interests are far away from the people and their reality here.

Fig.: Historic Sulfur Mines at Paliorema Bay, Milos, Greece

Mining has always been here and should be treated as part of our heritage, not just an economic activity. There is an ancient mine here that has never been excavated, for example, even though it has immense historical value. A collapse of the mine killed 40 workers. Still, no one cares. It is not even officially considered a grave. Our municipality did everything it could to designate it as a historical site, but the government allowed the area to be destroyed. There are too many places to preserve in Greece, so some are neglected. Most tourists come here for the natural beauty of the island, not for the mining history or the history of Milos in general. The state also does not invest in proper supervision or personnel. Wages are too low to attract qualified inspectors, for instance, for historical sites. If I only earn 800€ per month but have to pay 1000€ for my rent, then the job is not attractive. People would rather do something else. Thus, historical sites like the ancient city of Philakopi stay closed.

Q: Would you say that, from an economic perspective, mining offers more stability than tourism?

Not in general. In 2008, for example, during the financial crisis, mining companies reduced production. Workers had to take unpaid leave. Still, they weren't laid off and kept working, although the income was low. These kinds of problems can happen again. But in recent years, mining has remained stable. People in mining work hard!

Q: Where do people prefer to work – in tourism or mining?

Younger people are drawn to tourism. Older generations seem more closely connected to the mining tradition and feel a sense of pride in that. For them, work is about survival, not preference. Many younger people are less interested in working hard. I am responsible for the local tourism office, which is why I often represent the island abroad. Sometimes my days are so full that I have an appointment every two minutes. But I am proud of it.

In general, older generations have a stronger sense of history. Milos is historically famous for the Venus de Milo, a marble sculpture you've probably heard of. It is displayed in the Louvre Museum in Paris. Some items from Milos have also ended up in German museums. I saw one of them, a statue of Hermes, four years ago exhibited in the Louvre as part of an exhibition marking the 200th anniversary of Greek independence from the Ottoman Empire. The Louvre had borrowed the statue from the German museum for the occasion. It was strange to suddenly recognize something from here that I hadn't known about before.

Unlike Venus, the Hermes statue was stolen from Milos and surfaced in Rome before being bought by a German museum. After World War II, the statue was taken to Moscow and brought back to Berlin in 1962. Since then, it has been under restoration at the Pergamon Museum and has never been shown to the public. Once we discovered it, we made efforts to have it sent back to Greece. But a conversation like this needs to be initiated by the Minister of Culture. Only at that level, it might be possible to bring back the statue. These kinds of things remind us how important history is. If we forget our history, we have no future.

Q: So what about the future of Milos? Where is all of this development heading?

I honestly don't know. But I do know that I won't be around to see the worst of it – and I'm relieved. Things are not improving. Our oxygen, both literal and metaphorical, is being consumed by others. Take Santorini again, as an example. Traffic there is so bad that it can take a whole day to cross the island. Cruise ships unload thousands of people each day, overwhelming the infrastructure. Life for locals is becoming harder. Even though tourism brings money, the cost of living rises faster. If you're a local, you can't just eat at a restaurant every day like a tourist. You have to pay those same

inflated prices daily. Fuel and energy costs are also very high. Infrastructure like roads or electricity might improve slightly, but that does not make up for the challenges.

There is a video at this point on the website.
https://ethical-mining.eduloop.de/loop/Averkios_Gaitanis_on_Ethical_Mining_and_the_Future_of_the_Greek_Island_Milos

Med. 2.1: Cruise ships and ferry, port of Adamas, Milos, Greece

Q: What about the future of mining and tourism on Milos?

Mining will continue, as long as minerals are needed. There is also geothermal potential here. But earlier attempts to exploit it caused environmental damage. Still, the government wants to promote such energy production, but it comes at a cost. Twenty-five years ago, there was also an attempt to extract gold using cyanide. That was stopped because it was too dangerous for such a small island. We're not the Nevada desert! Industrial mining, especially for certain minerals, carries risks. There is even some radioactivity in places. But no one talks about it, and few understand it. And then there's the local hypocrisy. Some families sell their land to mining companies and then complain about environmental destruction. The pressure to develop – whether from mining or tourism – is relentless. The mountains are being cut down, the coastline is being covered with concrete. Large hotels are being built. Some now have more than 150 beds, even though that used to be the legal limit. Can we do anything against this? Maybe. But not through conventional means.

Q: Is there anything more that we should consider when we draw on Milos as a case study in the exploration of Ethical Mining?

You need to treat Milos as a special case. Mining and tourism intersect here in unique ways. Milos is exceptional due to its geology and geography. It was central to Mediterranean civilization for millennia. The island has been rich since ancient times, and mining was the foundation of that wealth. Its location made it a strategic hub – whether for trade or pirate attacks. During WWII, even a small number of German troops could control the entire surrounding sea because Milos is so central. Volcanic activity has given Milos special minerals. Some, like bentonite and perlite, are used worldwide. Santorini may be well known, but it doesn't have this range of industrial minerals.

No one knows what will happen a million years from now. But Milos will always be special. I believe mining will continue as long as minerals are needed. However, demand may fall if new technologies replace them. Tools like millstones, once essential, are no longer used. Some mines have already shut down because their products are

no longer in demand. Still, a geologist friend once told me: Milos offers the greatest diversity of minerals in the world. We have many books, extensive documentation, and a deep history of mining. It will continue for now.

Q: Thank you very much for your time, Mr. Gaitanis!

2.2 Activist Nolo on Mining and the Future of Hambach Forest near Jülich, Germany

> **Capitalism has become so productive that it's inefficient.**
>
> *Nolo*

The interview was edited by Felix Radke and Anna S. Hüncke

Last updated: 2025/10/07

Fig.: Treehouse, Hambach Forest, Germany

The interdisciplinary research team of "Ethical Mining" met the activist Nolo[169] at a treehouse in Hambach Forest in autumn 2024. Nolo stayed there for several days. The forest borders directly on the Hambach open-pit mine, the largest lignite mining site in Europe, located near Jülich, Germany. A few months later, Nolo shared their

[169] Nolo is a pseudonym. The interview partner chose to remain anonymous

experiences of occupying Hambach Forest and their perspectives on nature, society, the economy, and mining in an interview.

Q: Have you followed recent developments in Hambach Forest? What's your position on them?

Nolo: I don't live there anymore. Life in the forest was very exhausting—earlier it was easier because there were more people. Most recently, a forest east of Hambach near Marheim was occupied. RWE claims they need the overburden for the slopes, but that's nonsense. They could mine Sophienhöhe and backfill it. Instead, they say the area has been rehabilitated and want to clear another forest. This time, the protest prevented logging during the season, but surrounding areas were cleared, and there was a lot of violence from security.

Q: But you were active in other places too?

Nolo: Yes, in Dietenbach Forest near Freiburg. I skipped the last eviction there because it was extremely violent. The police acted very strategically, with the clear intention of using violence until people came down from the trees. On the first day, they came with lifts and removed ladders. People were stuck up there, without harnesses, without an escape route.

Q: Aren't there ways to resolve this without violence?

Nolo: Hard. Two very hard positions clash. Many who occupy forests come from the autonomous scene and live out their vision of social change there. Treehouses are one step—a small free space that's fought for until a logging or eviction permit comes. For the state, that's a problem, because it prefers to be asked so it can say no.

Q: That sounds like more than environmental protection—almost like social critique.

Nolo: Yes. We act destructively because we no longer see the value of nature and put profit above everything. Sustainability has become a topic, but it still takes second place to profit. Take lithium mining, for example: extremely water-intensive, pollutes groundwater, destroys the livelihoods of local communities. That's not a vision of the future—it's destructive.

Q: Should everyone live like the activists—in treehouses?

Nolo: No. That would be coercion. Living in the forest is like a journey into the past: no running water, hardly any electricity. It's very limited, but you learn how privileged we are in our apartments. Still, it cannot be the solution to demand that everyone live like that.

Q: What kinds of people get involved in forest occupations?

Nolo: Very diverse. People from poorer backgrounds who've experienced a lot of systemic violence. Many students. But also people with psychological issues who otherwise don't have a place. Overall, it's a mix—sometimes just travelers passing through or people coming from Fridays for Future. There are some older people, but few—it's too physically demanding.

Q: Under what circumstances would resource extraction be justified?

Nolo: We generally need to mine less. The problem is overproduction. Products are thrown away because new ones keep coming. Construction is similar: high-rises are demolished after just a few years simply because it's more profitable to build new ones. Capitalism has become so productive that it's inefficient.

Q: Would it be different under socialism?

Nolo: Not necessarily. In the GDR, environmental protection was in the constitution, but the economy was still extremely harmful. There are contaminated sites to this day. One difference: products were more durable. Glasses that are practically indestructible, or cars you could easily repair. We can learn from that. Today, products are deliberately short-lived—that's the opposite of sustainable.

Q: When is a forest occupation successful?

Nolo: When a forest is preserved, obviously. But also when people are politicized and start questioning their own engagement. Even if the logging isn't prevented, it's valuable. For me, it was a very educational experience.

Q: What do you say about compensation areas and reforestation?

Nolo: That destroys an intact ecosystem. Planting trees isn't enough. Animals like the hazel dormouse disappear, their habitat is lost. The best approach is to leave nature to itself. It knows how regeneration works—often faster and more sustainably than we think.

Q: And the geopolitical dimension? Resources and security, Ukraine, energy autonomy?

Nolo: Difficult. The utopia is a world without states and wars, but that's not realistic. What's clear: wars are almost always linked to resources and driven by profit interests. People often say war is inevitable, but the question should be: aren't there other solutions?

Q: May I ask: where does your knowledge come from?

Nolo: A lot from conversations, articles, friends. For example, lithium or iron mining in Sweden or Portugal. In Portugal, there's a community with commons—shared goods. This way of life is threatened because a lithium mine is planned. Entire communities can be destroyed this way.

Q: How do you bring your ideas into society?

Nolo: By showing how valuable nature is and counteracting alienation. But many people isolate themselves, especially through digitalization. We need real communities again—meetings, exchange. Otherwise, parallel realities emerge on the internet.

Q: Are there limits for you in dialogue?

Nolo: Yes. Radical freedom of speech sounds nice, but it leads to the tolerance paradox: if you tolerate everything, intolerant positions ultimately destroy tolerance. Positions like historical trivialization or AfD rhetoric are unacceptable to me.

Q: Are there theorists you refer to?

Nolo: Varies. Personally, I'm reading Erich Mühsam right now, a Jewish anarchist who was involved in the Bavarian Soviet Republic.

Q: Thank you for your insights and time, Nolo.

3 Specific ethical challenges in mining

Content

3 Specific ethical challenges in mining
3.1 Conflicts of Interest in Mining

3.1 Conflicts of Interest in Mining

by Sören E. Schuster and Nina Küpper

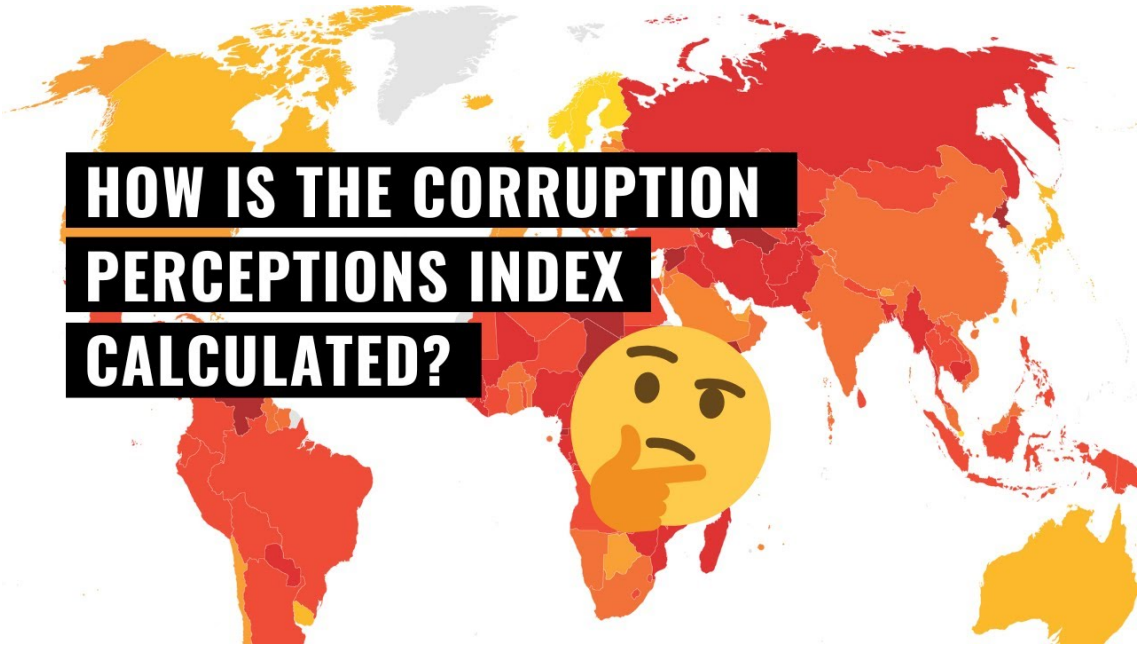
Last updated: 2025/12/09

Conflicts of interest represent some of the most pressing ethical challenges not just in mining but in multiple sectors, including politics and academia. While effective strategies exist to manage conflicts of interest and prevent ethical misconduct, such conflicts often lead to corrupt practices. According to the 2024 Corruption Perceptions Index (CPI), which ranks 180 countries by perceived public sector corruption, two-thirds of countries score below the midpoint of 50 on a 0–100 scale.[170] International initiatives like the United Nations Convention against Corruption (UNCAC) encourage countries to adopt broad anti-corruption measures.

Meanwhile, the Extractive Industries Transparency Initiative (EITI) specifically supports transparency efforts within the mining sector. Recent NGO reports reveal that despite global efforts, the mining industry remains vulnerable to conflicts of interest – these vulnerabilities fuel corrupt practices that undermine social and environmental justice and violate Indigenous Peoples' rights.[171] By focusing on conflicts of interest as root causes that often precede phenomena like corruption, this chapter addresses an important underlying driver of ethical misconduct.

[170] Transparency International (2025) *Tr25* , *p.6*
[171] E.g. BHRRC et al. (2025) *BH25*

Video



Med. 3.1: Corruption Perceptions Index Explained

YouTube – Transparency International

Time to watch 4m30s

Video

Med. 3.2: Introducing the EITI

YouTube – EITI

Time to watch 4m46s

3.1.1 Defining Conflicts of Interest in Mining

According to Gingras and Gosselin[172], the term “conflict of interest” evolved from describing simultaneous competing events to clashes between groups with opposing interests, and finally to cases where an individual, group, or institution is accused of illegitimate influence. According to Boatright's[173] key definition that is often referred to in business ethics, a conflict of interest occurs when “a personal interest interferes with a person’s ability to promote the interests of another when the person has an obligation to act in that other person’s interest”. While many relationships can involve competing interests, the key element of a conflict of interest is the obligation present on one side. For example, consider a government contractor who is responsible for conducting environmental impact assessments while also owning shares in the company being evaluated. In their capacity as a government contractor, they are required to deliver an impartial and unbiased assessment, but they also have a direct financial stake in the company's success. The foundations of such conflicts of interest are best examined through principal-agent theory, which was developed by Jensen and Meckling.[174] In this theory, a principal hires an agent to perform a certain task. Because both act in their own self-interest, and due to asymmetrical information (where agents typically have better knowledge than principals), a problem of moral hazard can arise. In this scenario, the government serves as the principal, engaging the contractor as the agent to perform tasks like the environmental impact assessment.

This perspective highlights the objective factors that pose a risk of undue influence, rather than centering on an individual's mindset or decision-making process. In our mining example, conflicting interests represent an objective reality, regardless of whether the government contractor engages in any inappropriate actions. By shifting the spotlight from an individual’s mental state to analyzing objective circumstances,

[172] Gingras / Gosselin (2008) *Gi08 , p.339*
[173] Boatright (2017) *Bo17 , p.95*
[174] Jensen / Meckling (2017) *Je76*

it becomes easier to pinpoint potential conflicts of interest proactively, before any misconduct occurs. This proactive approach enables the implementation of preventive measures, such as allowing the government contractor to recuse from the case when a possible conflict of interest arises. It is crucial to distinguish between potential and actual conflicts of interest, since determining the existence of an actual conflict often relies on subjective factors, including the agent's level of integrity.

Organizations as Principals and Agents

However, some situations are more complex and nuanced than the earlier example. Imagine a scenario in which a mining company provides funding to a research institution to investigate the ecological effects of mining activities. Conflicts of interest can arise not only among individuals but also between organizations on both sides, principal and agent. In this case, while the research institution gains from the financial backing, their responsibilities are not as clear as in the previous example, since their foremost duty is to uphold scientific independence and integrity. Even though the mining corporation may appear to be the principal, they should not assume that the research institution will prioritize the corporation's interests. In situations like this, which often arise when research and academia intersect, particularly in the mining industry, identifying solutions can be more challenging.[175] The organization could develop a strategy that avoids conflicts of interest – for example, through setting up a general research fund to which companies contribute without directly funding individual research projects. This approach would help maintain scientific autonomy while still enabling industry backing for research.

Dynamics of Power

If there is clear evidence indicating a conflict of interest, analyzing the dynamics of power can be beneficial. Studies on power differentiate between three types of power.[176] Hard power entails one party coercing another, whereas soft power influences preferences through attraction and persuasion. In our earlier situation, the company may exert influence over research in multiple ways, ranging from controlling the study design through financial pressure (hard power) to fostering relationships and shaping a sense of common purpose (soft power). The third type, smart power, refers to a strategic blend of both soft and hard power. One method to identify subtle power dynamics is to examine the communication between two entities. For instance, a study revealed that Coca-Cola employed soft power to influence research they financed related to childhood obesity – the researchers "consistently sought to ensure the funders were

[175] E.g. Marlatt (2021) *Ma21*
[176] Nye (2005) *Ny05*

satisfied and sought their guidance on choices of study design, framing and public presentation of study findings."[177]

3.1.2 Four Key Categories of Conflicts of Interest

To gain a clearer understanding of the extent of conflicts of interest, it is beneficial to examine Boatright's[178] four distinct categories of conflicts of interest:

1. Exercising biased judgement
2. Engaging in direct competition
3. Misusing a position
4. Violating confidentiality

The concept of biased judgment mainly refers to professionals with specific knowledge who serve as experts in a principal-agent dynamic (lawyers, accountants, etc.). A biased judgment can arise due to various circumstances, but also as a result of deliberate choices. Classic instances in this area involve gifts that can compromise an expert's impartiality, with the gift's value being a key factor. In various cultures, giving gifts can be a traditional and even essential practice, which complicates the line between bribery and gift-giving. An illustration of this distinction is found in the Chinese tradition of guanxi, which initially refers simply to "relationship".[179] However, business relationships in the context of guanxi often involve the exchange of gifts – sometimes symbolic, but often material – as a way to strengthen mutual obligations and trust. To avoid potential conflicts of interest, many companies in the mining industry have implemented restrictions on giving and receiving gifts as a preventive measure.

The second category, engaging in direct competition, describes situations in which agents compete with their principal. For example, this could be the case when an employee offers the same services they provide for their principal as a freelancer (e.g. environmental impact assessments). Under such circumstances, the agent may not only be exercising biased judgment in his work for his principal, but may also be actively limiting his principal's profits. In some cases, companies may approve outside projects if they are disclosed, especially if the work has only a minor influence on the principal's interests.

In the third category, either the principal or the agent misuses their power for personal or organizational benefit. One typical illustration of this category is nepotism, where, for example, a hiring manager at a mining company sways the recruitment process

[177] Stuckler et al. (2018) *St18 , p.55*
[178] Boatright (2017) *Bo17 , p.96-98*
[179] Li et al. (2022) *Li22*

to favor a relative applying for the position. Although this may not always result in adverse effects for the principal – as the relative could genuinely be the most qualified applicant – it still represents a conflict of interest because the choice was influenced by a personal relationship, not just the candidate's merit.

The final type of conflicts of interest is the violation of confidentiality. Imagine a situation in which a mining company collects important data while exploring a potential mining location, and a member of the exploration team shares this information with outside parties. Even if this disclosure does not negatively impact the company's interests, it still represents a conflict of interest. Although the misuse of power and breaches of confidentiality frequently intersect, there are instances where a violation of confidentiality happens without any authority involved. For example, an employee might accidentally discover important information and share it, even without any harmful intent.

3.1.3 Managing Conflicts of Interest in Mining

Conflicts of interest can significantly affect not only principals and agents but also broader stakeholders, making it essential to manage them effectively. Wayne Norman and Chris MacDonald[180] distinguish between micro-, mid-, and macro-level conflicts of interest and thereby provide a framework for organizing strategies to address such situations. On the microlevel that targets the individual, measures are often limited to "exhortations for conflicted professionals to resist temptation".[181] Ideally, professionals proactively avoid conflicts of interest, maintain objectivity when they arise, fully disclose relevant information, and adhere to established policies. At the mid-level, attention turns to the organization itself, with the goal of fostering an environment that enables individuals to behave in an ethical way. This involves implementing appropriate policies, encouraging the inclusion of independent third parties, and considering structural aspects such as compartmentalization – having one division dedicated to employee safety and another focused on cost reduction can mitigate the likelihood of conflicting interests, for example. The macro-level examines conflicts of interest in business within the broader context of social, legal, and political frameworks. Emphasizing the role of trust in institutions and organizations, one might argue that, following numerous violations, a professional code should be overseen not by the profession itself but by the state.

[180] Norman / MacDonald (2010) *No10*
[181] Norman / MacDonald (2010) *No10* , *p.464*

3.1.4 Case Study: Small-Scale Gold Mining in Ghana

This case study references the work of Crawford and Botchwey,[182] who aimed to explore how a large number of Chinese migrant miners engaged in small-scale gold mining in Ghana, even though this industry is legally reserved for Ghanaian nationals. The research is based on fieldwork conducted in Ghana and includes interviews with government representatives, local miners, and Chinese immigrants. Beginning in 2008, Chinese migrant miners started operating without legal authorization, bringing in new machinery and methods, such as river mining techniques, which greatly enhanced efficiency and increased gold output. Over time, some Ghanaians started to partner with the migrant miners, and eventually, Ghanaians independently adopted the new mining methods. The study by Crawford and Botchwey emphasizes that the state's inability to enforce regulations was not merely a matter of negligence, but rather that migrant miners were actively protected by influential individuals, including government officials, politicians, and chiefs, often in return for private payments. Although the rise in small-scale gold mining could be viewed as a beneficial result, as many stakeholders profited from it, the mining activities caused substantial environmental harm to both land and water as a result of inadequate regulations. Additionally, the illegal status of these operations led to a considerable decrease in tax revenue.

Video

Med. 3.3: The price of gold: Chinese mining in Ghana documentary | Guardian Investigations

[182] Crawford / Botchwey(2017) *Cr17*

YouTube – The Guardian

Time to watch 14m20s

3.1.5 Case Study: EITI in Indonesia

Since the 2000s, Indonesia has experienced significant and rapid growth in its mining sector. Today, Indonesian companies are major global suppliers of mining products such as coal, nickel, and tin. However, this mining boom has been accompanied by entrenched structures that foster conflicts of interest, resulting in widespread corruption, tax evasion, and environmental degradation. In response to these challenges, Indonesia became a candidate country for the Extractive Industries Transparency Initiative (EITI) in 2010 and achieved compliant status by 2014. Research indicates that Indonesia's participation in EITI has strengthened civil society participation and empowerment, enabling more effective engagement in extractive industry governance.[183] Nonetheless, persistent issues remain, particularly regarding transparency in contract publication and ownership disclosure. The 2024 EITI Validation Report also highlights significant gaps in data concerning small-scale mining activities.[184] Positive developments are also reflected in Indonesia's Corruption Perceptions Index (CPI) score, which nearly doubled from 20 in 2000 to 37 in 2024, signaling progress in anti-corruption efforts. This case underscores that addressing conflicts of interest is a long-term endeavor requiring structural reforms that often extend beyond the mid-level to encompass broader political and legal frameworks.

websource

Further reading:

EITI (n.D.).

Indonesia.

[183] Yanuardi et al. (2021) *Ya21*

[184] EITI (2024) *EI24*

3.1.6 First-hand case studies by Chris Masurenko

In two case studies, Chris Masurenko, geologist and CEO of ECTerra, shares his experience with conflicts of interest in the mining sector. The cases are set in Mozambique and Liberia and focus on small-scale tantalum mining.

There is a video at this point on the website.
https://ethical-mining.eduloop.de/loop/First-hand_case_studies_by_Chris_Masurenko

Med. 3.4: Interview With Chris Masurenko - Case: Mozambique

There is a video at this point on the website.
https://ethical-mining.eduloop.de/loop/First-hand_case_studies_by_Chris_Masurenko

Med. 3.5: Interview With Chris Masurenko - Case: Liberia

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II List of figures

Fig. 1.1: Google Search - Ethical Mining..... 24

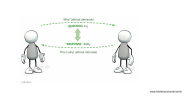

Fig. 1.2: Basic structure of responsibility..... 72

Fig. 1.3: Individual self-attribution of core responsibility, authors' translation, adapted from © IUW Berlin..... 114

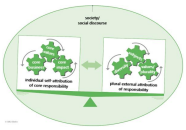

Fig. 1.4: Model of Core Responsibility, authors' translation, adapted from © IUW Berlin..... 115

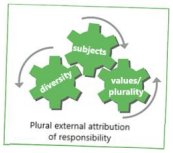

Fig. 1.5: Plural external attribution of responsibility, authors' translation, adapted from © IUW Berlin..... 116

Fig. 1.6: Scale of Core Responsibility, authors' translation, adapted from © IUW Berlin..... 117

Fig. 1.7: The three pillars of sustainability..... 129

Fig. 1.8: The three overlapping circles of sustainability..... 130

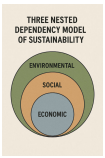

Fig. 1.9: The three nested dependency model of sustainability..... 131

III List of media

Med. 1.1: Critical raw materials ... 29
Med. 1.2: What is compliance, and why is it important? ... 37
Med. 1.3: Contractarianism Crash Course Philosophy #37 ... 50
Med. 1.4: Causes and Effects of Climate Change ... 63
Med. 1.5: Hambacher Forest, Germany – Earth Timelapse ... 65
Med. 1.6: Indigenous Peoples and Mining ... 77
Med. 1.7: Ep 3: What happens to a mine AFTER it is closed? ... 79
Med. 1.8: Ep.12 How the mining industry is responding to tailings dam failures ... 87
Med. 1.9: L'éthique du futur de Jonas ... 90
Med. 1.10: What are cumulative effects? ... 94
Med. 1.11: Von der nachhaltenden Nutzung - Ein fiktives Interview mit Hans Carl von Carlowitz ... 127
Med. 1.12: The Three Pillars of Sustainability and How they Impact our Everyday Lives! ... 128
Med. 1.13: What is Doughnut Economics? with Kate Raworth ... 140
Med. 1.14: The Origin of 'Limits to Growth' - Interview with Dennis Meadows ... 142
Med. 1.15: The Planetary Boundaries and what they mean for the Future of Humanity ... 143
Med. 1.16: Do you know all 17 SDGs? ... 145
Med. 1.17: ESG in Mining: An Exploratory Categorisation ... 147
Med. 1.18: What is ESG? Introduction to Environmental, Social and Governance ... 148
Med. 2.1: Cruise ships and ferry, port of Adamas, Milos, Greece ... 163
Med. 3.1: Corruption Perceptions Index Explained ... 168
Med. 3.2: Introducing the EITI ... 169
Med. 3.3: The price of gold: Chinese mining in Ghana documentary | Guardian Investigations ... 174
Med. 3.4: Interview With Chris Masurenko - Case: Mozambique ... 176
Med. 3.5: Interview With Chris Masurenko - Case: Liberia ... 176

IV List of tasks

Task 1.1: Moral judgments (transfer task) 10
Task 1.2: Terms (reflection exercise) 16
Task 1.3: Moral conflicts (exercise for reflection) 22
Task 1.4: Moral behaviour (knowledge exercise) 22
Task 1.5: Ethics and morals (transfer exercise) 28
Task 1.6: Relativism, ethics, morality (knowledge exercise) 30
Task 1.7: Ethics, morals, professional ethics and law 32
Task 1.8: Moral or ethical conflict? 32
Task 1.9: Moral competence 33
Task 1.10: Ethical relativism 33
Task 1.13: Maximising benefits (reflection exercise) 46
Task 1.14: Moral judgements (transfer exercise) 49
Task 1.15: Justice as a point of reference for ethical behavior 51
Task 1.16: Normative and descriptive ethics 53
Task 1.17: Material and formal ethics 54
Task 1.18: Points of reference and criteria for ethical behaviour 54
Task 1.19: Practical judgement 54
Task 1.20: Business ethics (knowledge exercise) 65
Task 1.21: Applied ethics and area ethics 67
Task 1.22: Function of applied ethics and area ethics 67
Task 1.23: Business ethics and specialised knowledge 67
Task 1.24: Differentiation of area ethics 68
Task 1.25: Types of responsibility 83
Task 1.26: Structure of responsibility 83
Task 1.27: Examples of responsibility in mining 83
Task 1.29: The imperative of responsibility 103
Task 1.30: Practical caution in mining 103
Task 1.31: The fleeting responsibility 103
Task 1.34: CSR as defined by the European Commission 122
Task 1.35: Elements of the core responsibility model 122
Task 1.36: Mining in social discourse 122
Task 1.37: The three nested dependency model of sustainability 133
Task 1.38: Circular Economy 136
Task 1.39: From Limits to Growth to the MDGs and to the SDGs 146
Task 1.40: Societal relevance of sustainability 151
Task 1.41: Understandings of sustainability 151
Task 1.42: Sustainability in mining 151
Task 1.43: The different positions from an ethical point of view concerning sustainability in mining 152
Task 1.44: Circular economy and doughnut economy 153

V Glossary

Discursive

In a manner that unfolds through extended argument, discussion, or narrative, often moving across related topics by way of reasoned transitions. It contrasts with strictly linear or telegraphic expression, emphasizing the process of dialogue and conceptual linkage.

Discursive agreement

The level of consensus or shared understanding among individuals or groups regarding a particular issue or topic, often explored through the analysis of language and discourse.

Autopoietic system

A system which produces and reproduces its own elements and its own structures. Following the sociologist Niklas Luhmann, society is an autopoietic system . It consists of communications which produce new communicatoins on the basis of existing social structures.

Paternalism

The view or practice by which an authority (state, institution, individual) restricts someone's choices or enforces behavior "for their own good," even over their objections. It presumes that the authority knows better than the person affected and justifies intervention by appeal to welfare, safety, or moral integrity.

Critical Raw Materials

Non-energy minerals or metals deemed essential to modern technologies and economies yet vulnerable to supply disruption due to concentrated production, geopolitical risk, limited substitutes, or recycling challenges. The EU regularly updates its "critical" list by assessing each material's economic importance and supply risk. Some examples for Critical Raw Materials are lithium, cobalt, nickel, gallium and titanium.

Categorical Imperative

Kant's foundational principle of morality, stating that one should act only on maxims that one can will as universal laws applicable to everyone. It forbids using persons merely as means and demands that moral requirements hold unconditionally, regardless of one's desires or goals.

Descriptive

Pertaining to objective reporting or analysis of what is — the way things actually are — without prescribing any judgments, values, or recommendations. Descriptive claims aim to map facts, states, or behaviors rather than to evaluate or direct them.

Normative

Concerning standards, values, or principles about what ought to be done, what is right or wrong, or how things should be. Normative statements prescribe actions or norms and often ground ethical, legal, or policy judgments.

Virtue

A stable, praiseworthy character trait or moral excellence — such as honesty, courage, or compassion — that inclines a person to act well and flourish. Virtues are cultivated through habit and reflection and guide decision-making beyond mere rule-following.

Practical Judgement

The capacity to apply general principles, experience, and contextual understanding to concrete situations in order to decide wisely what ought to be done. It balances abstract norms with real-world complexities and calls for deliberation rather than mere rule application.

Epistemological

Concerning epistemology, the philosophical study of knowledge — its nature, sources, structure, limits, and justification. Epistemological questions probe how we know what we know, what rational grounds beliefs, and when claim to knowledge is warranted.

System Responsibility

The collective ethical obligation of interconnected actors — organizations, industries, governments — to manage the joint impacts of their actions on society, the environment, and future generations. It emphasizes shared accountability and coordinated governance over siloed, individual decision-making.

Atopia

The quality of being unclassifiable, exceptional, or "out of place" — conveying something ineffable, uncanny, or defying ordinary categories. It describes experiences, artworks, or subjects that resist fixed labels and call attention precisely by their singularity.

Prima Facie

Latin for "at first sight"; indicating that, based on initial evidence, a claim or duty appears valid until counter-evidence emerges. In ethics it names duties that hold on their face but may be overridden by stronger considerationse.

Multilateral

Involving three or more parties — states, organizations, or stakeholders — cooperating on ostensibly equal terms toward a common agreement, policy, or action. Multilateral arrangements complement bilateral deals (two parties) and unilateral acts (one party).

Discursively

This is a new page.

Tailings

The finely ground waste slurry remaining after valuable minerals are extracted from ore in mining operations. Stored in engineered ponds or dams, tailings can pose environmental and safety risks if not properly managed.

Pluralistic

Characterized by the coexistence and mutual toleration of diverse viewpoints, values, identities, or institutions within a single system or society — none of which dominates entirely. Pluralism affirms that multiple perspectives can jointly shape public life or discourse.

Resilient

Possessing the capacity to withstand, adapt to, and recover from shocks, stressors, or disruptions — whether ecological, social, organizational, or personal — while maintaining core functions and identity. Resilience involves both robustness and adaptability.

Disgression

Partisan

Having a strong, often uncritical allegiance to a political party, cause, or ideology, leading to biased judgments and selective acceptance of information. Partisan actors prioritize loyalty and strategy over impartial analysis.

Empathic

Having the ability to understand and share another person’s emotional state or perspective, and to respond with appropriate concern. Empathic engagement fosters interpersonal connection and can motivate compassionate action.

Consensus

A collective decision-making process in which a group arrives at general agreement through dialogue and accommodation of differing views, aiming for solutions that all can accept, even if not everyone's preferred outcome is fully realized. Consensus emphasizes inclusion over simple majority rule.

Pluralisation

The process through which multiple distinct elements — ideas, identities, approaches, or systems — emerge, diversify, and gain recognition within a broader context. It underscores the move from uniformity toward varied, coexisting forms.

Paradox

A paradox is a statement or situation that seems self-contradictory or logically impossible, yet may reveal a deeper truth upon reflection. It challenges conventional reasoning by exposing hidden complexities or assumptions.

Anthropological

Anthropology is the systematic study of human societies and cultures across time and space, with a focus on the social, cultural, and linguistic dimensions of human life. It offers critical insights into the diversity and complexity of human experience.

Retrospective

Looking backward on past events, often to analyze, reinterpret, or commemorate them.

Prospective

Oriented toward what lies ahead, anticipating potential future developments, opportunities, or challenges. Prospective analysis involves forecasting, planning, and scenario-building to inform current decisions.

Arithmetical

Pertaining to arithmetic, the branch of mathematics concerned with basic operations — addition, subtraction, multiplication, division — and the properties of numbers. Arithmetic underlies quantitative reasoning in everyday life and scientific computation.

Digression

A temporary departure from the main subject in speech or writing, intended to explore a related point or anecdote before returning to the central thread. Digressions can enliven exposition but risk distracting if unchecked.

Anthropocentric

Regarding humankind as the central or most important element of existence, especially as opposed to God or to animals.

Assets under management

The total worth of all the financial assets (like stocks, bonds, real estate, or mutual funds) that a firm or fund is responsible for investing and managing.

Prescriptive

Prescriptive refers to rules, guidelines, or approaches that specify exactly what must be done. It leaves little room for interpretation or flexibility, often detailing procedures, standards, or expected outcomes.

Biodiversity

Biodiversity is the variety of life on Earth, including different species of plants, animals, fungi, and microorganisms, the ecosystems they form, and the genetic diversity within them.

International Council of Mining and Metals (ICMM)

The ICMM is a global industry association that promotes responsible mining practices. It sets sustainability standards and provides guidance to help mining companies improve environmental performance, social responsibility, and governance.