

*Airport expansion is a worldwide trend, and aviation is projected to grow and contribute massively to global anthropogenic greenhouse gas emissions in the next decades. Focusing on the conflict about constructing a third runway at the airport Vienna, Austria, this study filters out the norms of the different stakeholders in the context of the social ecological crisis.*

## **Another runway towards the climate crisis?**

Insights from Multicriteria Mapping and Qualitative Content Analysis at the airport Vienna conflict

### **Abstract**

In February 2017, the Austrian Federal Administrative Court raised attention with an unexpected judgement: It forbid the construction of a third runway at the airport Vienna. Its' argument: Austria would not meet its CO<sub>2</sub> targets as party to the Paris Agreement about keeping the rise in global temperature at 1.5°C until 2100. A heated public debate began, about new jobs, Austria's economic location, noise for the residents, and global climate justice. By now, its' construction has been allowed. This study is based on quantitative data generated in multicriteria mapping interviews about sustainability, with twelve stakeholders representing academia, the aviation industry, civil society and the government. A qualitative content analysis of the interviews was conducted. Thereby, actors' norms are revealed, and give insights about values underlying interests for and against airport expansion in the context of human-induced climate change.

### **Keywords**

Austria, airport expansion, sustainability, climate justice, mixed methods, multicriteria mapping, qualitative content analysis, classical institutional economics, critical realism

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## **Aviation will increase greenhouse gas emissions significantly**

The potential construction of an additional runway at the airport Vienna is one of 121 globally, while 423 completely new airports are planned to be built (CAPA, 2017 cited by Finance & Trade Watch, 2017: 3).

Currently, aviation contributes 2-3 % of global anthropogenic greenhouse gas emissions (Öko-Institut, 2015: 28; Alcock et al., 2017: 136). Against a background of 4.3 % annual growth of the aviation sector in the next decades though (ICCT, 2017: 1), it may account for 15-40 % of global CO<sub>2</sub> emissions by 2050 (Dubois and Ceron, 2006: 181; Gössling and Peeters, 2007: 408). To limit the rise of the average global temperature to significantly less than 2°C, CO<sub>2</sub> emissions (without non-CO<sub>2</sub> impacts) from international aviation must fall at least by 41 % by 2050, compared to 2005 (Öko-Institut, 2015: 9).

This picture is also reflected on the national level: According to the climate protection law, Austria had committed itself to reduce its em in the traffic sector by 2.25 %. The construction of the third runway at the airport Vienna would trigger an increase of 1.79 %-2.02 % ghg equivalents of the total Austrian emissions (BVwG, 2017: 117).

The third runway at the airport Vienna had thus the potential to be an “emblematic, iconic conflict” for the societal consciousness of mobility in Austria, like the nuclear power plant in Zwentendorf and the hydroelectric power station in Hainburg, according to Ulrich Brand (VCÖ, s.a.).

## **The third runway at the airport Vienna**

In April 1998, the Viennese airport published the ‘Masterplan 2015’, where the idea of a third runway came up for the first time. It was a description of the necessary expansion, according to the predicted traffic development at that time (Rynesch, 2005: 130; Lenz and Wostratzky, 2004: 47). But even though the passenger numbers rose from 2007 by 30% to 24.39 million passengers in 2017, the movement of flights declined from 266.402 in 2008 to 224.668 in 2017 (Standard, 2018). In order to construct the third runway, hills need to be flattened, and new taxiways need to be built for the airplanes, as well as ways and service roads. Further constructions will be flight safety and operation facilities, light, and water facilitation systems. Also, a road would need to be moved (Flughafen Wien AG, 2011: 7). The area of the airport Vienna would be enlarged by about 15 km<sup>2</sup> (Dialogforum, s.a.).

From the presentations of the Masterplan 2015, strong reactions followed. The local population of the close-by municipalities of Enzersdorf an der Fischa, Fischamend, Groß Enzersdorf,

Kleinneusiedl, Rauchenwarth, Schwadorf, Schwechat, Zwölfxing and the city of Vienna was concerned about their spatial possibilities and the disturbance by noise, caused by a third runway. Regional and over-regional citizens initiatives were created. For this reason, the airport Vienna corporation (Flughafen Wien AG) started a communication process with the local population, with the aim of making the runway expansion known to the public (Krainer 2006: 9).

### **Is airport expansion in Austria's public interest?**

On 2nd February 2017, the Federal Administrative Court (Bundesverwaltungsgericht, BVwG) made its decision (Erkenntnis) public, not to allow the construction of the third runway at the airport Vienna. The reasons were the estimated rise in greenhouse gas emissions, the commitment to national and international duties of reducing these emissions, and conserving valuable arable land for future generations' food supply (BVwG, 2017). The project was against the public interest, and Austria was legally bound to reduce its ghg emissions by the Kyoto Protocol and the Paris Agreement (BVwG, 2017: 52).

On 29th June 2017, after a complaint by the Flughafen Wien AG and the federal state Lower Austria, the constitutional court (VfGH) abolished the BVwG's decision against the construction of the third runway as unconstitutional. The VfGH criticized, that the BVwG had argued with climate protection and area use in an unconstitutional way regarding the weighing of interests: The other public interests that need to be considered in regard to the aviation law, should be deducible directly from the aviation law itself. Further, it was not allowed to use the Kyoto Protocol to interpret aviation law (VfGH, 2017a; VfGH, 2017b).

On 28th March 2018, the BVwG allowed the construction of a third runway, and an ordinary revision, in its new decision. The third runway could be constructed under additional conditions for the airport, regarding ghg emissions, aviation noise and construction site dust (BVwG, 2018).

### **Social ecological economics**

The third runway case takes place in the centre of tensions: a society embedded within an environment which is about to collapse by human induced emissions; a state committed to various environmental policy conventions restricting those emissions, such as the Paris Agreement; and structures, institutions and their inherent dynamics and prevalent ideas within economic policy, such as the need for job creation and economic growth, working against a serious reduction of emissions. It is therefore my endeavour to make sense of this phenomenon within the field of social ecological economics.

## **Critical realist ontology: revealing generative mechanisms**

With critical realism, social ecological economics finds a philosophy of science particularly helpful to conceptualize the complex relations between nature and society, beyond reductionist approaches. Corresponding research designs are directed towards providing in-depth explanations, and the explanation of generative mechanisms are responsible for phenomena to exist and events to occur. To assess reality's multiple aspects, it combines different methods of empirical investigation. (Puller and Smith, 2017: 17) It rejects a belief in value-neutrality and a hiding of normative standpoints, but commits to developing transparent concepts of the human good and environmental sustainability (*ibid.*: 18).

For social ecological economics, these ontological considerations imply: The social reality is created by humans, facts about social reality cannot be separated from values, and social and biophysical reality are interconnected. Reality exists independent of humans and is structured in an order, e.g. the biophysical, social and economic. Every stratum is emergent and brings with it new properties, hence the social can be understood without the economic, but not vice versa. Complex systems are inherently unpredictable, as they create emergent properties. Society is more than the aggregation of individuals, and an individual cannot be reduced to a part of society. Systems continually change and interact. (Spash, 2012: 33)

In the third runway case, critical realism asks, what the generative mechanisms are, making airport expansion possible in the context of human-induced climate change.

## **Classical institutional economics: norms and multiple rationality**

Classical institutional economics is suggested to operate as a coherent alternative economic theory of human interaction of ecological economics, by Arild Vatn (2006: 12, 2017: 29). The environmental institutionalist analysis by Vatn is based on a social constructivist perspective, but with a realist interpretation. It is therefore in line with the meta-theoretical considerations of critical realism.

Going beyond a dualism of agency and structure, institutionalists propose a synthesis of the two: a dialectical perception of the agent and the structure. Agents produce new institutional structures. Structures must exist independently, as they can be reproduced or also transformed (Vatn, 2005a: 53-57). Social structures and relations are collectively created, are thus human made. This is why they are open to critique about what is most reasonable to do (Vatn, 2006: 1).

Institutions are defined as “the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and produce and protect interests.” (Vatn, 2006: 2). Classical institutional economics recognizes that rationality is social. Behaviour can follow different rationalities depending on the institutional context. (Vatn, 2005a: 113-122). Different institutional arrangements are the market, the firm, the family, the community or civil society, and the political arena or the state. While the market makes of the individual a consumer and a producer, and encourages individual rationality and utility maximization, the community makes individuals to neighbours and friends, and fosters social rationality and reciprocity. (Vatn, 2015: 118f). Integrating those insights with critical realism, the economic, social and environmental structures give rise to certain mechanisms. Norms, as value-articulating institutions, operate as generative mechanisms, which under certain conditions result in conventions, coordinating behaviour and creating regularity, and formally sanctioned rules. Thus, norms are crucial to understand the conflict about the third runway.

## Multicriteria mapping

Multicriteria mapping (MCM) promotes a number of ideals integral to social ecological economics, including its commitment to plural values, the related promotion of interdisciplinarity and transdisciplinarity, and its engagement with uncertainty (White, 2017: 329).

As participants, I chose three representatives each from the fields of academia, aviation industry, civil society and the government:

*Table 1* Interview participants

<i>Field</i>	<i>Organization</i>	<i>Field</i>	<i>Code</i>
<i>Academia</i>	Technical University of Vienna	traffic planning	ACA1
	Vienna University of Economics and Business	transportation economics	ACA2
	University of Life Sciences Vienna	climate	ACA3
<i>Aviation industry</i>	major airline based at airport Vienna	environmental, aeropolitical affairs	AIR1
	airport Vienna	operations environment	AIR2
	company responsible for safe air traffic in Austrian airspace	environment	AIR3

<i>Civil society</i>	Austrian environmental NGO Austrian climate activist group umbrella organization of independent citizens initiatives against the third runway	climate activist resident	CIV1 CIV2 CIV3
<i>Government</i>	Lower Austria Austria City of Vienna	politics, traffic civil servant, relevant to research politics, district councillor	GOV1 GOV2 GOV3

The multicriteria mapping process was conducted under the overall question: Which dimension and environmental strategy of the airport Vienna is sustainable?

A multicriteria mapping interview begins with a review of given core options to this overall problem. Additional options may be contributed by the interviewees themselves. Second, participants come up with criteria to assess the options. Third, interviewees assign an optimistic and a pessimistic score from 1 to 100 to the options, judging how well the options perform in the light of each evaluation criterion. Fourth, criteria are weighted from the relatively most to the least important one. As the fifth and last step, the scores under each criterion are multiplied by the criteria weightings. The result is an overall pessimistic and optimistic relative ranking for each option. (Coburn and Stirling, 2016: 26-51)

The six core options were:

*Table 2* Core options for multicriteria mapping

<i>Option group</i>	<i>Core option</i>	<i>definition</i>
Yes to third runway	CO2-neutral airport	Construct the third runway and reach a climate neutral airport Vienna (after Airport Carbon Accreditation Scheme Level 4) and a reduction of 30 kt/a until 2025 as asked by the BVwG.
	ICAO (CORSIA)	Construct the third runway and implement the ICAO (International Civil Aviation Organization) strategy.
	Big infrastructure projects	Construct the third runway and push big infrastructure projects.
No to third runway	Expand the train system	Do not construct a third runway and expand the train system.

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Tax aviation	Do not construct a third runway and abolish the tax privileges of the aviation sector.
Fossil-free economy	Do not construct a third runway, overcome fossil fuels and restrict consumption.

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The final ranks for core options for the perspectives of academia, the aviation industry, civil society and government resulted as follows:

KEY TO UNCERTAINTY	KEY TO OPTIONS (core options)	KEY TO GROUPINGS
Pessimistic scores	1 CO2 neutral airport	ACA Academia
Optimistic scores	2 ICAO (CORSIA) 3 Big infrastructure projects 4 Expand train system 5 Tax aviation 6 Fossil-free economy	AIR Aviation industry CIV Civil society GOV Government

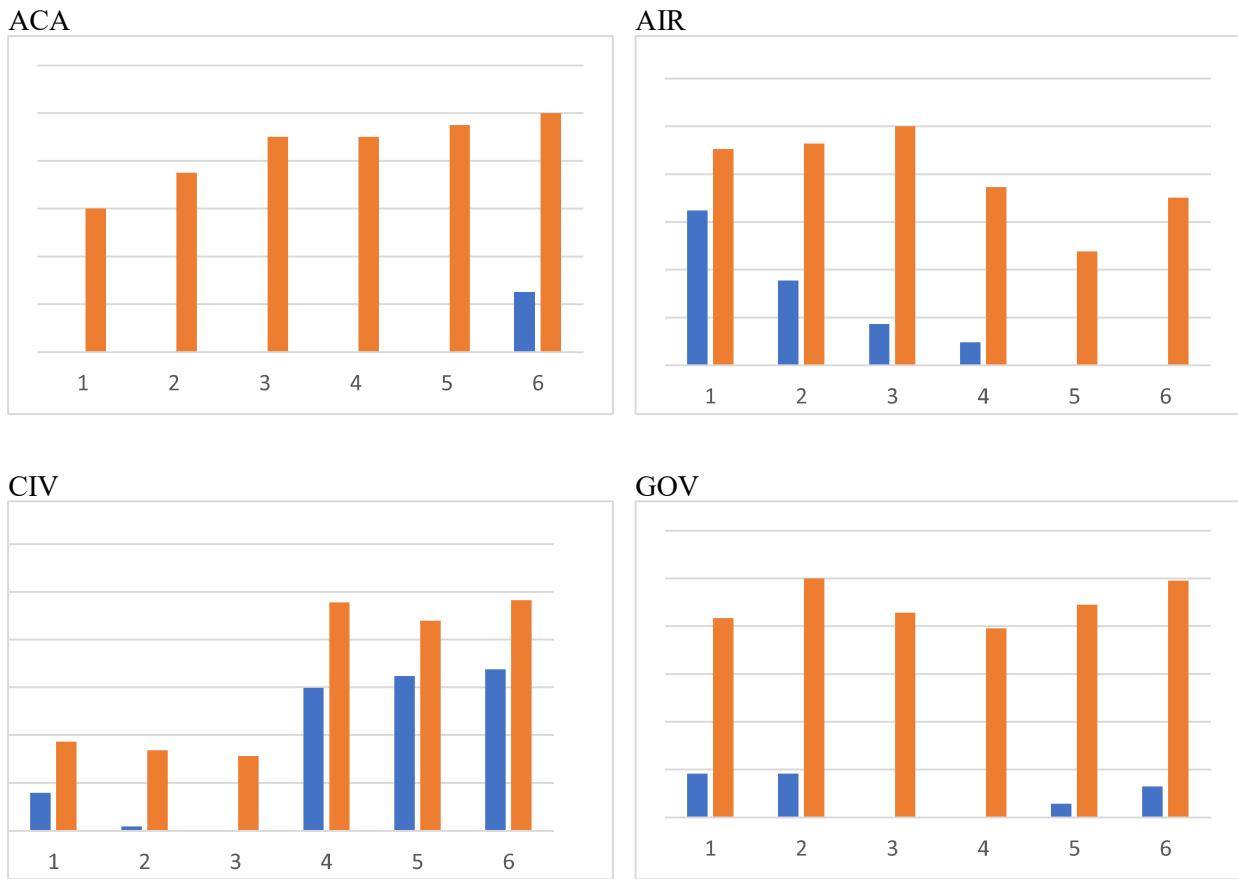


Figure 1 Final ranks for core options for perspectives

Looking at the perspectives, in certain groups a general trend can be observed. The academia as well as the civil society perspective show the highest optimistic value for the fossil-free economy

without a third runway. While the civil society participants clearly prefer all options without a third runway over those implying its' construction, the academia participants only show a very slight preference. The government group has on average no clear tendency towards constructing or not constructing the third runway, and shows overall high scores for ICAO as well as the fossil-free economy. The aviation industry interviewees, scored pushing big infrastructure projects highest, and has a clear preference for building the third runway.

Within the perspectives though, opinions differ. Participants strongly in favour of the third runway were AIR2 and GOV1, moderately AIR1 and AIR3. Actors strongly against the third runway were ACA1, ACA3, CIV1, CIV2, CIV3 and GOV3, and very slightly ACA2 and GOV2.

## Qualitative content analysis

The method of multicriteria mapping results in quantitative values, but also in interviews which explain why the values were assigned. The interviews were transcribed to clean read transcripts (Mayring, 2014: 45), and analysed according to qualitative content analysis along Mayring (2014). Norms as “images of what it means to act in a socially right or responsible way” (Vatn, 2015: 109) were inductively coded, relating to the categories economy, society and environment (CEc, CS and CEn). Combining the quantitative outcome on preference in favour of or against the third runway with the qualitative outcome of norms, it can be observed which norms underlie which opinion:

*Table 3* Norms mentioned most often and by actors in favour of the third runway

<i>Categories</i>	<i>Norms</i>	<i>Actors in favour of third runway</i>
CS5	Noise should be reduced.	GOV1, AIR1, AIR2
CEn4	Technological progress will also in the future make aviation and individual automobility possible.	GOV1, AIR2
CEc4	Austria should be strengthened in international competition.	GOV1, AIR3
CEc5	The airport Vienna should be strengthened in international competition.	AIR3, AIR1
CEc6	Austrian and European airlines should be strengthened in international competition.	AIR1, AIR2
CEc1	Creating jobs is important.	AIR2, AIR3
CEn3	A single state alone cannot reduce CO2 emissions efficiently.	GOV1, AIR3

CEn6	Environmental protection and economic growth can go hand in hand.	AIR1, AIR2
CS6	It is important that the society stands behind infrastructure projects or environmental policy.	AIR3, AIR2, AIR1
CS7	Society is not ready yet for a change to a fossil-free economy.	AIR3, AIR1
CEn1	CO2 emissions should be reduced.	AIR1, AIR2, GOV1

*Table 4* Norms mentioned most often and by actors against the third runway

Categories	Norms	Actors against third runway
CEn1	CO2 emissions should be reduced.	ACA1, CIV1, CIV2, ACA3, CIV3, GOV2, GOV3, ACA2
CEc2	New jobs should be sustainable.	ACA1, ACA2, CIV3
CEc3	Costs should reflect environmental damages.	CIV1, ACA2, GOV3
CS2	Human rights must be respected.	CIV1, CIV3
CS3	Future generations shall prosper.	CIV1, CIV3
CS4	Mobility is an important societal need.	CIV1, CIV3
CS8	Environmental strategies should be just.	CIV2, CIV3
CEn5	It is possible and important for single states to reduce CO2 emissions.	CIV2, ACA3, GOV2
CEn3	A single state alone cannot reduce CO2 emissions efficiently.	ACA2, ACA3, GOV2

## How norms and institutional systems let different interests emerge

### Actors in favour of the third runway

Taking the institutional systems as outlined in classical institutional economics, the group strongly and rather in favour of the third runway are managers in the aviation industry and placed in a firm and a market context, and one of them in the political arena (Vatn, 2015: 125, based on Vatn, 2005b).

They have a strong feeling of pressure due to international competition regarding the airport, the airlines and Austria in general. Participant AIR1 stated in the weighting process: “Profitability is honestly the highest [priority], because we are driven by that.”

For the very local society, namely the residents, it is claimed by the aviation industry, that noise is the most important issue of the conflict about the third runway. Participant GOV1 explicitly weighted noise and economic criteria double as high as CO2. Participant AIR1 saw little interest of their customers in reducing CO2 emissions: “The CO2 compensation of our online bookings in 2017 was 0.35 % on average.”

Actors in favour of the third runway align to the norm that CO2 emissions should be reduced. They are aware of climate change and the impacts for future generations. Interviewee AIR2 said regarding CO2 as a criterion: “I have two children [...]. Thus, it is not entirely selfless.”

The two participants strongly in favour of the third runway believe that technological progress will allow a future for the aviation industry, even though it is not yet clear how. Participant AIR2 sees no correlation between the third runway and rising CO2 emissions: “If I take the third runway, the CO2 situation is managed by CORSIA, therefore it cannot lead to an increase of CO2 from aviation.”

This technological optimism fits well into the optimism of decoupling modern mobility practices from ecological destruction, thus faith in Green Growth (Paech, 2017: 479). Participant AIR2 states: “Generally, I believe, that environmental protection and infrastructure projects as well as economic growth must go hand in hand.” And further: “[...] for us, over all the correlation between profitability and reduction of emissions is important.” It also shows, that the fossil-free economy option was interpreted differently by different participants, namely as ecological modernization for some, and a profound structural change towards degrowth for others, as will be shown below.

Another aspect is, that participants in favour of the third runway do not see the nation state as the place or level to take action for climate change. A national intervention would be to tax aviation, but this was refused by this participants group, due disadvantages in international competition. This shows the priority of utility maximization and individual rationality as typically applied in the institutional system of the market (Vatn, 2015: 125, based on Vatn, 2005b).

### **Actors against the third runway**

Looking at the group strongly or slightly opposing the third runway, participants belong to the institutional system of community, thus civil society, or the political arena, thus the state. One of them can be attributed to a family context with emphasized care taking.

For this group, creating jobs is also important, but they refuse to implement unsustainable infrastructure projects for the short-term sake of jobs. Participant ACA3 states: “[...] the 30.000

jobs or so [newly created with a third runway] are some technicians, but mostly businessmen in the airport building. With the money used, I could create significantly more jobs in another sector, and more sustainable ones.”

Flying and the use of CO<sub>2</sub> is connected with a feeling of injustice, which reflects the social rationality of the civil society institutional system. There is solidarity with the local population due to health. Interviewee CIV3 states: „It is also about fundamental rights of the third order: a right to health, a right to a healthy environment, namely for all.” They are also solidary with the global population, due to human rights violations in off-setting projects. Participant CIV1 says: “Eucalyptus plants are planted and fenced in, and before, it was an area which was used by indigenous peoples.” A resource-intense life style is seen as unfair against future generations and against a global vulnerable population, as ACA3 states: “If you look at it ethically, with our current emissions in Austria, we would need to be CO<sub>2</sub>-free in 14 years.” Mobility is recognized as an important societal need, but flying is seen as something that should be reduced. Interviewee CIV2 says: “[...] it is not a necessity to fly everywhere constantly.”

All participants are convinced that CO<sub>2</sub> emissions need to be reduced. Strategically, participant ACA1 argues: “There is the term of sustainable growth. That is not possible. If you study biological processes, you see that growth itself bursts the system and will never create a systemic equilibrium.” This fits into the logic that sustainability and an absolute decoupling of CO<sub>2</sub> emissions and economic growth cannot be realized (Koch, 2017: 441). Sustainable degrowth is envisaged, as “a socially sustainable and equitable reduction (and eventually stabilisation) of society’s throughput.” (Kallis, 2011: 874). In contrast to the Green Growth paradigm, technological innovation is not expected to achieve a remaining within CO<sub>2</sub> thresholds, due to the Jevons paradox (Demaria et al., 2013: 198).

In contrast to the other group, optimism towards the impact of national climate politics is dominating. They find that costs should reflect environmental damages, and are therefore in favour of taxing unsustainable practices like aviation. The two participants who are only very slightly against the third runway, are sceptical if national climate politics makes a difference.

## **Laying open values and assumptions for further dialogue**

In conclusion, the norms of the imperative to grow economically to keep up with international competition and to provide jobs for the local population as short-term political success for Austrian politicians - located in the institutional system of the political arena, thus driven by individual and

social rationality - and the norm that growth can and must go hand in hand with a reduction of CO2 emissions, led to the decision, that the third runway may be built as an expansion of the airport Vienna, even in the context of the climate crisis.

Critical social research aims not only to describe, but also to transform society. The finding, that – besides different interests - also common ground exists on the awareness of climate change and the endeavour to take action, but the solution strategies range from technological optimism and Green Growth to structural change and degrowth, makes the basic assumptions underlying the competing opinions clear. By laying these norms open, this study can hopefully contribute to a fruitful dialogue.

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