

Report

The Migration Policy Simulation: Engaging stakeholders in Austria's migration future by linking an agent-based model with a policy exercise

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Abstract

This report fulfils the ABM2Policy project Deliverable 2.2: A scientific report describing the protocol and outcomes of the migration-focused gamification exercise and the usefulness of an agent-based model for policy assessment. The goals guiding the research of the ABM2Policy project are twofold: i) to advance macroeconomic agent-based model (ABM) methodology for a realistic and verifiable analysis of migration as an external economic shock to the Austrian national economy, and ii) to explore the usefulness of an ABM combined with a gamified user-interface to support the Austrian migration policymaking discussions and to enhance stakeholder engagement. This Deliverable reports on the second project goal. The ABM was 'gamified' by developing a model-based policy exercise (PE) in the complex policy setting of climate migration to Austria. The results of the simulations of a macroeconomic ABM informed (role-playing) stakeholder deliberations, and in some instances, consensus emerged on complex climate migration policy issues. The PE brought to the fore the diverse and often conflicting viewpoints regarding migration through a process of discussion and negotiation, which in turn helped the participants understand the complexities of migration issues in the Austrian context. Overall, the PE participants assessed the game to be an effective tool for gaining knowledge and understanding of the policy process on environmental migration. The preliminary trials show promise in combining an ABM with a PE to support stakeholder deliberations on the migration policy process. The next step is to conduct a similar policy exercise with relevant Austrian stakeholders, e.g., political party members and public officials, to inform actual policy processes.

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I. Introduction

Globalization has led to greater international interconnectivity due to large volumes of trade, investment and human capital flows. This interconnectivity engenders 'systemic risk,' whereby a small perturbation in the system may lead to catastrophic consequences, as seen in the global financial crisis of 2007-2008. National governments are hence concerned with the need to enhance the resilience of their national economies, being vigilant of the many potential shocks that may impede their sustainable and stable growth. According to the 2023 Global Risks Report, which presents views on the most significant long-term risks worldwide, large-scale involuntary migration that may undermine economies and well-being is among the top five global concerns (World Economic Forum, 2023).

In Europe, the refugee crisis of 2015-2016, triggered by the intensification of conflicts in Lybia, Syria, Iraq, and Afghanistan, precipitated an exodus of more than 1.8 million persons from these countries to Europe and prompted policymakers, academics, businesses and the public to engage in a debate over the systemic impact of migration on national economies and societies. By the end of 2022, Europe had 12.4 million refugees and 1.3 million asylum-seekers. The refugee crisis has affected various European countries, with some of the most significant migratory movements occurring in Germany, Poland, France, and Spain (UNHCR, 2022a). Refugee crises are also witnessed in many countries outside Europe, such as Lebanon, Türkiye, and the United States. Türkiye is home to the largest number of Syrian refugees, totalling 3.7 million (UNHCR, 2023b). Meanwhile, Lebanon accommodates over 1.5 million refugees, primarily Syrians, making it the country with the highest number of refugees relative to its population (UNHCR, 2023a). As of May 2023, more than 1.3 million asylum applications were awaiting processing in the United States (Ward & Batalova, 2023). Since its onset in February 2022, the armed conflict in Ukraine has resulted in the world's most significant current displacement crisis. Millions have had to evacuate their residences. By July 2023, Europe recorded approximately 5.9 million Ukrainian refugees, with the global count surpassing 6.2 million (UNHCR, 2023c).

An acute migration inflow can lead to a crisis if the recipient country is unprepared to adapt its policy to cope with an often complex situation. For this purpose, a model-based scientific assessment of in-migration consequences (both direct and indirect) on a country's national economy, as well as an evaluation of alternative policies to support resilient economic growth, can provide valuable insights to inform relevant policy communities. Macroeconomic models suited for such an analysis can represent the out-of-equilibrium behaviour of an economy, describing how economic dynamics may unfold well beyond the business-as-usual case.

An agent-based modelling (ABM) approach is particularly well suited for describing and analysing migration impact and policies since it enables a micro-level representation of dynamic behaviours and interactions of individual heterogeneous economic agents – such as firms' investment decisions and participation of people (including migrants) in the labour market over time. An explicit representation of heterogeneity, for example, in the labour force, is a particular advantage of ABMs as it captures socio-economic interactions on a micro-level, which are usually beyond the scope of traditional DSGE (dynamic stochastic general equilibrium) models and econometric models (Caballero, 2010; Fagiolo & Roventini, 2017; Grazzini & Richiardi, 2015). The individual behaviours in ABMs emerge into macro-level economic trends, such as unemployment rate and aggregate production. Most ABMs assume partial information available to agents and their bounded rationality in decision-making, complimented by the ability to learn and react to environmental changes.

However, a sense of scepticism is still commonly observed regarding the ABM approach. Model calibration and validation are some of the most common concerns (Crooks et al., 2008; Windrum et al., 2007). Calibration of model parameters, and especially behaviour rules, remains largely ad hoc, while validation is rarely performed or discussed. In addition, the nascent and un-formalized ABM approach lacks rigorous standardization, and even simple ABMs have many parameters and output variables, making documentation tedious. Scepticism is hence well-founded. Beyond improving the calibration and representativeness of ABMs to real-world phenomena, it is equally challenging to design ABMs in such a way as to provide useful insights to policymakers and stakeholders involved in formulating migration policy.

The ABM2Policy project addresses these two methodological shortcomings of large-scale ABMs: i) rigorous calibration and model validation and ii) development of effective means of stakeholder engagement. This project builds on ongoing IIASA and CEMI efforts to develop large-scale ABMs of the Austrian and Russian national economies. The project enabled both teams to further extend their existing ABM tools. Additionally, we developed a novel method for transparent and standardised calibration and model validation while tailoring the tools for the economic analysis of migration inflows under alternative policy scenarios. The study also advanced the ABM methodology for use in stakeholder processes. We developed and piloted an accompanying policy exercise which has the potential to be used by Austrian migration policy stakeholders.

Stakeholder dynamics and the weighing of different trade-offs associated with alternative migration policies (Groen, 2016; Pablo-Marti et al., 2013) were explored using a combination of a policy exercise and an ABM. We developed a gamified policy exercise (also known as a policy simulation or simulation game) using input from an ABM, in which participants assumed the "simulated role" of national policymakers charged with evaluating alternative migration policies. The policy exercise encompassed relevant storylines, policy questions, roles, and responsibilities, along with perspectives or "world views" that influenced the preferences of multiple stakeholders.

This policy exercise was built upon prior research conducted by IIASA on designing and implementing model-based stakeholder processes (Linnerooth-Bayer et al., 2016; Scolobig et al., 2016; Linnerooth-Bayer, Ekenberg, et al., 2013; Linnerooth-Bayer, Vári, et al., 2013), as well as recent efforts in game-based stakeholder interaction (Stefanska et al., 2011; Krolikowska et al., 2007; Martin et al., 2007). The use of policy exercises for migration is, however, in many ways unique and topical. Moreover, the migration issue is high on the political agenda in Austria. The developed policy exercise thus showcased how a large-scale ABM can usefully contribute to policy deliberations.

II. The policy issue: environmental refugees from the MENA region

A. Rationale

The policy issue – persons from the Middle East and North Africa (MENA) region seeking entry to Austria due primarily to the hardships imposed by climate extremes in their country – was chosen for several reasons. First, the issue of political refugees and economic migrants is highly topical in Austria and throughout the European Union. Austria currently hosts about 233,000 refugees and subsidiary protection holders and over 34,000 asylum seekers (UNHCR, 2022b). Among the recent migration arrivals, the most significant was in 2015, during the Syrian civil war, when 88,000 asylum seekers originating from countries of the Middle East entered the country. With the ongoing war in Ukraine, Austria is experiencing yet another significant arrival of migrants seeking temporary protection. With increasing geopolitical instability and economic insecurity exacerbated by climate extremes, Austria and other European countries will likely experience more frequent and sizeable migratory movements from countries in Africa and the Middle East in the future. In contrast, until now, emigration from regions impacted by climate change has primarily exhibited a gradual upward trend, with people rather relocating to areas facing severe consequences of climate change (Mcmahon et al., 2021).

While the 2015–2016 migrants were primarily persons fleeing political conditions in Syria and other Middle Eastern countries, migration due to or exacerbated by climate extremes raises distinct policy issues and moral arguments. For one, wealthy countries, including Austria, by emitting greenhouse gases, have contributed to the hardships imposed in the poorer countries, which introduces the question of responsibility and differentiates this issue from that of political refugees. Also, in contrast to political asylum seekers, there are no formal arrangements in place that grant environmental migrants refugee status. To date, the European Union does not have a coordinated and effective asylum-processing plan, nor does it have a policy in place to deal with migrants seeking asylum for environmental or climate-related reasons.

In this context, the macroeconomic ABM calibrated for Austria serves as a crucial tool to inform policy discussions. By simulating various scenarios and policy options, the ABM can shed light on the potential outcomes of allowing environmental migrants to obtain refugee status and integrate into the Austrian labour market. This research aims to contribute to developing informed and comprehensive migration policies that address the challenges posed by climate-induced migration and promote sustainable solutions for Austria and the wider European Union.

B. Policy questions

Building on background work, which included a review of Austria's political party platforms and stakeholder narratives (see Annex), it was decided to focus on three controversial policy questions:

- To what extent should Austria assist MENA countries in light of hypothetical climate-related crises (drought and locust infestations)?
- What should be Austria's position in the EU deliberations on instituting a new classification of 'environmental refugees', meaning they would have full access to the Austrian labour market?

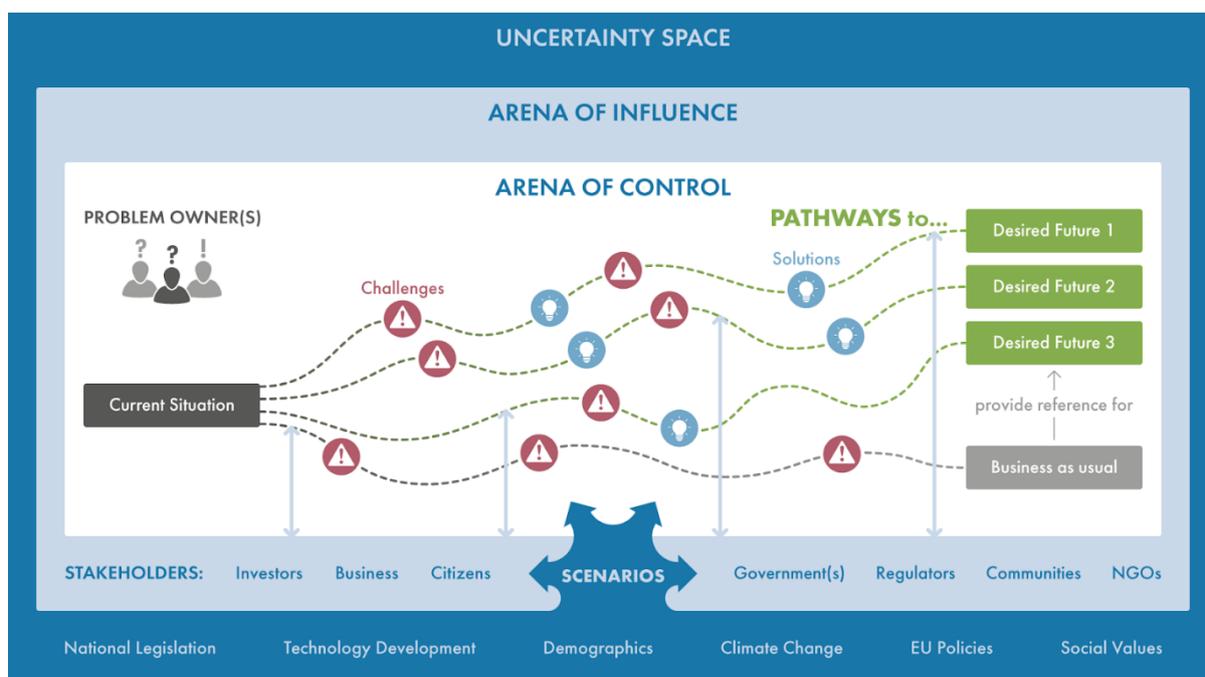
- Should Austria support (financially and politically) Mediterranean rescue efforts?

III. Methodology

A. Policy exercise

A policy exercise (PE) (Duke & Geurts, 2004) is an experiential process designed to enable participants from different worldviews to collectively explore specific, real-life policy issues by recognising and acknowledging the differences in their rationalities. Individuals engaged in a PE explore actual policy issues, work with real-world data, and develop projects and solutions that can be implemented in the real world. Moreover, in this setting, the participants try to look beyond their interests and collaborate to reach a common goal. As a PE employs elements derived from game design practice, it might be compared to a multi-player serious game where the elements facilitate communication between participants (Geurts et al., 2007) and enable them to receive feedback on their decisions (Harvey et al., 2009). At the same time, PE shares certain characteristics with interactive theatre, especially in the realm of freedom of participants, who are not limited by any imposed goals and can thus exert control over the unfolding situation. Consequently, a PE is open-ended, enabling its users to create visions of their “desired futures”, and collectively explore possible strategies to reach them. These strategies, also called pathways, are tested against a range of external scenarios that challenge the goals (Störmer et al., 2020). This process aims to allow the participants to understand key challenges on the way to their desired futures, as well as to develop solution options that are required to overcome them. A PE session is concluded with a debriefing that bridges the experience with the real world and leads to stakeholder dialogue about required changes to bring them closer to their desired future.

Three domains may be identified in a PE process: an arena of control, an arena of influence, and an arena of uncertainty (as illustrated below). An arena of control is where problem owners can effectively make decisions and develop pathways to their desired futures. The problem owners, also referred to as decision units (Zurek & Henrichs, 2007) can range from a small organisation to a large country or region, a river basin, or a group of countries (e.g., EU). Problem owners function in a larger context of the arena of influence, where they encounter other significant stakeholders. Previously developed pathways might thus both impact and are impacted by these new actors and their worldviews, decisions, and actions. Further, the arena of control and the arena of influence function within an even larger uncertainty space, which encompasses a range of external scenarios (Notten, 2006). To ensure that their pathways are robust to the scenarios, participants look into this space and identify key drivers and constraints that translate to various opportunities and threats for the internal arenas.



Overview of Policy Exercise approach. Source: authors.

The migration PE developed for the ABM2Policy project employed a narrative-based approach, which makes use of a narrative layer that is presented through video materials, news articles, emails, social media accounts and other materials, such as maps or infographics. The narrative was created based on available scientific data and validated with experts from the field (Adam, 2020). For the effective conduct of such an exercise, appropriate narrative techniques (Vogler, 2007) for the storylines are required. This narrative can take a more prominent place in the overall structure of the workshop, or, as in the case of the migration PE, it can be used to provide additional context for negotiations and the policy development process that is the main part of the exercise.

B. Agent-based modelling

Agent-based models (ABMs) originate in the natural sciences, namely in physics and biology, where they have proven to be particularly advantageous in representing the aggregate behaviours of self-organizing complex systems (Gardner, 1970; Yorke et al., 1979; Epstein & Axtell, 1996; Wilensky, 2004; Eisinger et al., 2005). The use of an ABM approach for a realistic representation of an economy is still in its infancy; a number of recent studies have presented arguments supporting an agent-based approach, but the development of ABMs remains a challenge (Farmer & Foley, 2009; Richiardi, 2017).

Akin to laboratories in which controlled experiments may be conducted in wide-ranging natural science fields, such as physics and biology, an ABM, if designed appropriately, can potentially serve as an artificial computer-based laboratory to experiment with different policy options within an economic system. Arguably, a detailed representation of the underlying economic processes offered by ABM is a promising way forward to make economic models work under a broad range of input scenarios (Stiglitz, 2011; Stiglitz & Gallegati, 2011; Dawid et al., 2018; Neugart & Richiardi, 2012). ABM approaches, because of their ability to draw larger insights from interactions of heterogeneous agents, have a large potential to describe the complexity of migration and related national and local policies.

IIASA's macroeconomic agent-based model (Poledna et al., 2023a) was the basis for analysing the potential consequences of a large migratory movement into Austria. The ABM includes diverse interacting agents such as households, firms, banks, and the government. These agents engage in market transactions through search and matching processes, and their behaviour is guided by rules based on behavioural heuristics and bounded rationality, moving away from the assumptions of perfect rationality and complete information.

This ABM is augmented to better explore the impact of the migration scenario (Poledna et al., 2023b). To analyse the effects of the migration scenario, we enhance the model's household sector and calibrate it to match key Austrian economic indicators from 2019, such as GDP growth, the inflation rate, the unemployment rate, and the budget deficit. We also consider a range of other economic and demographic indicators.

Our analysis focuses on more than a thousand cohorts of the Austrian population, differentiated by sex, citizenship, activity status (e.g., inactive, unemployed, employed), and occupation (industry). The model takes into account the heterogeneity of the population and simulates the effects of migration on each of these cohorts (Poledna et al., 2023b).

The labour market outcomes for each cohort are determined by a combination of behavioural, institutional, and socio-economic factors. These factors, in turn, impact the labour market demand-supply match for native and non-native populations. We estimate probabilities of employment for each cohort in each industry based on available data.

Finally, the model allows for feedback effects between labour market outcomes and the broader state of the economy. This is achieved through the interaction of agents in the labour, consumption, and capital markets within the model.

C. Use of simulation models in participatory processes

The migration Policy Exercise builds on a rich experience of using simulation models in multi-stakeholder participatory processes (Freebairn et al., 2016), including policy exercises. Simulation models can be a powerful tool to help the participating stakeholders better understand the complex system being modelled, i.e., they typically provide stakeholders with a means to experiment with different input scenarios and observe the consequences of their decisions in a safe-to-experiment and controlled environment, often in a visual and interactive way. This can be especially useful for addressing wicked problems, including those that are difficult to understand or communicate verbally. By observing the results of simulation models, for example, estimates of the potential outcomes of different policy options, stakeholders can enhance their understanding of the problem at hand and, hence, their capacity to anticipate the consequences of various choices. Therefore, the outputs of simulation models can also be used to inform policy decisions.

Participatory processes involving simulation models are typically designed to address conflicting interests among different stakeholders or stakeholder groups who have different priorities, concerns, and objectives in the real-life issue at stake (Gurung et al., 2006). Often they are related to the management of ecosystems and shared resources, such as water, land, fishery, or forests – or their nexus (Manthrithilake & Liyanagama,

2012; Ruankaew et al., 2010; Worrapiumphong et al., 2010). According to the authors' knowledge, applying a simulation model in a policy exercise to study migration and its consequences is novel.

Using simulation models addresses these conflicts by bringing stakeholders together to work towards a common goal in a risk-free, simulated environment. A good process is designed to allow stakeholders to share their perspectives, knowledge, and expertise and to explore different scenarios and policy options. This enables them to better understand the potential impacts of decisions and actions and find acceptable solutions for all stakeholders. Therefore, employing simulation models in a participatory context can also improve stakeholder communication and foster social learning (Basco-Carrera et al., 2018; Stave & Dwyer, 2006).

Typical stages of stakeholder engagement with a simulation model include model and scenario building (co-design), model validation and model exploration (Basco-Carrera et al., 2018; Joffre et al., 2015). In this report, we focus on the model exploration part. The objectives of a participatory model exploration process vary and can include raising stakeholder awareness about trade-offs between their objectives, comparing alternative policy options, organizing and structuring a dialogue between stakeholders, facilitating the finding of a compromise solution, and knowledge sharing (Epstein, 2008).

Exploration of a simulation model in a participatory context usually assumes the physical (or, since recently, also online) presence of real stakeholders. It involves representatives of several key stakeholder groups (Rouan et al., 2010), for example, during workshops. The number of participants in a model exploration exercise can vary widely, from a few people to 20-30 or more, depending on the size and scope of the project. The idea is that all relevant stakeholders should be represented in such an exercise. Stakeholders for a model exploration exercise are chosen either by self-selection, i.e., participating voluntarily (Stave, 2002), or by invitation by the research team based on the preliminary stakeholder mapping. For example, the ARDI (Actors, Resources, Dynamics, and Interactions) process helps to identify the list of stakeholders, the corresponding management entities, and the links between them (Etienne et al., 2011). In some cases, when the involvement of direct stakeholders (e.g., high-level policymakers) is not possible, their representatives can be recruited. The ultimate aim is to ensure that the participation of stakeholders is representative of the real-world system being modelled and is inclusive and diverse, e.g., in terms of age, gender, race, ethnicity, social status, views, values, etc. (Castella et al., 2005; Ruankaew et al., 2010; Van Berkel & Verburg, 2012).

Several factors can motivate stakeholders to participate in a model exploration process. Firstly, having a stake in the problem is a key motivator for stakeholders to get involved (Palmer et al., 2013). When they have a vested interest in the outcome, they are more likely to be motivated to participate and contribute their knowledge and expertise to the process. Secondly, the willingness to initiate a dialogue or cooperation is also a key motivator for stakeholders (Souchère et al., 2010). When stakeholders are open to working together, they are more likely to engage in the participatory process and contribute their ideas and perspectives. Thirdly, previous experience in participatory modelling, if generally positive, can also motivate stakeholders (Souchère et al., 2010). When they have already participated in similar processes, they are more likely to be familiar with the process and the expectations, making them more willing to participate again. Additionally, higher authorities such as government officials or business leaders can also play a role in motivating stakeholders to participate (Souchère et al., 2010). When they are involved in the process, it can signal to other stakeholders that the process is important and worth their time and effort. Lastly, the

participation of other similar stakeholders can also motivate stakeholders. When they see that others in their industry or community are participating, they are more likely to join in as well.

For preliminary testing and validation of a simulation-aided policy exercise, running it with "mock" stakeholders can be beneficial. These stakeholders could be students with relevant backgrounds who can play the roles of real stakeholders. On the other hand, utilizing a policy exercise as an educational tool can provide students with hands-on experience in stakeholder engagement and decision-making processes.

A participatory model exploration process can facilitate stakeholder deliberation in several different ways, depending on the level of participation desired by the stakeholders. First, the model results can be presented to participants, followed by a discussion (Gibon et al., 2010). This allows stakeholders to reflect upon the outcomes of the model and provides an opportunity for them to provide feedback and ask questions. Alternatively, participants can jointly define scenarios, which are then fed into the model. The outcomes are then discussed with the stakeholders, for example, at a workshop (Joffre et al., 2015; Van Berkel & Verburg, 2012), enabling stakeholders to actively participate in the model development process and to understand how their input affects the model's outcomes. In case the model implementation supports it, another possibility is to let participants change model parameters during the simulation (Barreteau et al., 2006; Ruankaew et al., 2010; Souchère et al., 2010). This can be done either individually, in mini-groups, or by the entire group of participants collectively. This allows stakeholders to explore the model's behaviour under different conditions and to understand the impact of different policy options on the complex system under study. Finally, stakeholders can be involved in analysing and reflecting on the model outcomes (Worrapimphong et al., 2010). This includes interpreting the results of the modelling and discussing the implications of the outcomes for decision-making and policy development, enabling stakeholders to understand the potential impacts of different policy options and make informed decisions.

The most commonly used models in participatory exercises are system dynamics models (SDMs) and agent-based models (ABMs) (Voinov et al., 2016). SDMs are used to study the behaviour of complex systems over time in a holistic yet stylized manner (Pruyt et al., 2018; Stave, 2003, 2008, 2010). These models are beneficial for exploring how different factors and variables interact to influence the behaviour of the system. Studies using SDMs often focus on changes at the system level, such as the impacts of different policies on the system's behaviour over time. On the other hand, ABM-based processes focus on changes in the behaviour of individuals (for example, in response to a policy) and are typically used to model complex systems, in which individual behaviour and interactions of individuals play a critical role.

An attractive user interface and visualization of the simulation model play a crucial role in the participatory process. Easy-to-grasp visualizations can help stakeholders understand the model outcomes and make informed decisions (Pruyt et al., 2018). Additionally, a graphical user interface (GUI) that allows stakeholders to play with the model in real-time can be helpful. A user-friendly GUI provides a means to experiment with different scenarios, change model parameters and see the impact on the outcomes, which can help them better understand the system's behaviour (Palmer et al., 2013). To facilitate workshops, models may have different interfaces for different purposes (Becu et al., 2008). For example, simpler and more attractive interfaces can be used to make it easy for stakeholders to understand the model and its results. On the other hand, more complex interfaces with more data can be used for intermediate analysis to reveal more detailed information (Farolfi et al., 2010).

Providing the benefits of participatory model exploration, it is important to keep in mind that it also has some limitations. One of the main limitations is that simulation models are often based on a set of assumptions and parameter estimates. These assumptions and parameter estimates may only partially reflect the complex reality of the system being modelled and contain biases. Therefore, representativeness and neutrality are important aspects for a simulation model to be a part of a participatory stakeholder process.

Representativeness refers to the extent to which the model reflects the real-world system it is simulating. This includes ensuring that the model includes all major relevant factors and variables and that its parameters are set to reflect the current state of the system. Neutrality refers to the extent to which the model is unbiased and does not favour any particular stakeholder or outcome. This includes, at minimum, ensuring that the model is transparent and that its assumptions and decision rules are clearly stated. Both representativeness and neutrality are essential to ensure that the model is credible and that its results can be trusted. When stakeholders have confidence in the model, they are more likely to participate in the process and accept the outcomes of the model as a basis for decision-making. To maintain representativeness and neutrality, the data and assumptions should be transparently documented. Also, the model should be informed by the latest data and, where relevant, should be tested against real-world data. Furthermore, the model should be flexible and should allow for different scenarios and policy options to be explored. Finally, the use of simulation models can be time-consuming and resource-intensive.

Further aspects of stakeholder interaction with simulation models (beyond model exploration) in participatory processes, such as co-design of the model, data collection and model validation, are discussed, for example, by Voinov et al. (2016). Overall, simulation modelling can be a powerful tool in participatory processes such as policy exercises, but it should be used with caution and in conjunction with other methods to ensure that the results are accurate and useful.

The Policy Exercise developed in the ABM2Policy project used the pre-computed results of the simulations of the macroeconomic agent-based model (Poledna et al., 2023a), which were presented to the participants as infographics embedded in the policy exercise.

IV. Background preparation for policy exercise

A. Review of political party positions

The policy exercise was grounded in the *realpolitik* of Austria, which is characterised by strongly competing worldviews and narratives on the migration issue and its solution. These narratives are reflected in the political party positions on migrations, which is one of the most topical and controversial issues in Austrian politics, especially after the 2015 refugee crisis, particularly concerning asylum seekers and refugees. As background to the PSM, where participants play the role of a national political party member, the party positions were reviewed, summarized and to some extent stylized as presented below. The positions were based on party manifestos and public statements. As an important material for the PSM, for which participants play the role of political party members of the national parliament, we reviewed the five main

party positions based on party websites and advised by an expert on this issue (Wegschaider, 2017). The stylized summaries are below¹.

1. **SPÖ (Social Democratic Party)**

Austria's Socialist Party (SPÖ) has a long tradition of supporting social solidarity, social security, participation, grassroots organizations, and freedom from violence as prerequisites for a thriving society. It strongly believes in a secular society, and that religion should not be part of politics. Nor should discrimination be tolerated. These values translate into the view that migration should be "humanitarian, solidary, consequent".

In practice, the Socialists emphasize the importance of integration and limits on the number of migrants - working within the EU. Specifically for immigration, this means:

- The number of refugee arrivals to Austria has to be reduced to a level that makes integration possible (the Austrian government limited annual arrivals to 37,500 after 2015 under a government led by a coalition between the SPÖ and the ÖVP);
- Asylum seekers and refugees should receive free language and skills training, job application support, qualifications checks, programs aimed at preventing radicalization, and more;
- A clear plan for cooperation with African countries, perhaps even an EU Marshall Plan, is needed;
- The EU needs to protect its external borders. Refugees whose claims are granted should be relocated within Austria and the EU, others should be returned to their countries, and
- A joint European asylum system ought to be developed.

2. **FPÖ (Freedom Party)**

The FPÖ stands for preserving Austria's culture, values and traditions, thus guarding its sovereignty and self-determination. This means protecting Austria's borders — "Austria is not a country of immigration." On the domestic front, the FPÖ is strongly individualistic and supports the free market, private property and individual freedom.

Specifically for immigration, the FPÖ positions are:

- The right to asylum in Austria is only granted if the claimant did not reach Austria by travelling through a safe third country (note: Austria is a landlocked country and surrounded by safe third countries);
- All financial incentives for claiming asylum in Austria should be eliminated — by cutting social spending and by switching to non-cash benefits;
- The number of foreign students should be restricted in order not to jeopardise the success of Austrian children;
- Humanitarianism must not jeopardize Austrian interests; external aid should be restricted;
- No handouts: aid should only be administered to the extent that it allows one to fend for themselves; and
- Only those religions that respect the separation of church and state should be accepted.

3. **NEOS (The New Austria and Liberal Forum)**

¹ It is important to note that the review is based on the parties' websites, and may not fully capture the nuances or complexities of each political party's position.

The NEOS is a centre-left party that describes itself as representing a political culture of respect, undogmatic solution orientation and freedom of expression. It is opposed to the FPÖ and ÖVP 'scaremongering' about the migrant issue, although the party is concerned about issues such as the isolationism of migrants and their sometimes tendency to oppose Austrian values. The NEOS are committed to democracy (new forms of participation), the rule of law, environmentally sustainable free markets, freedom, personal responsibility and diversity. The NEOS support strong action against climate change, a carbon tax and international environmental law. The party is soundly pro-Europe.

In practice, the NEOS supports:

- Stronger border controls;
- Improved integration of the first, second, and third generations of immigrants;
- Anti-discrimination on the basis of nationality;
- The creation of a government department dedicated to integration, developing solutions from kindergarten age to entry to the labour market;
- Faster and more efficient asylum procedures;
- Binding return agreements with countries of origin in return for significantly increased development assistance;
- Requirement for asylum seekers to live in their assigned town;
- The benefits of the Schengen area are only for those EU countries that share responsibility for migrants.

4. ÖVP (The New People's Party)

The ÖVP, traditionally Christian conservative, underwent a major shift to become more individualistic after the last election. Self-responsibility, voluntary support for those in need, and helping people help themselves through employment gained emphasis within the Party. Two campaign issues appear to dominate the popularity of the party – a crackdown on illegal immigration and a fight against political Islam. The Party manifesto points out that migration policy could in the long-term save Austria up to 1.5 billion Euros, which could be used to increase development aid to ease the migration pressure. The ÖVP claims to support aid and protection to persecuted people.

Concretely, the ÖVP positions are:

- Halt illegal migration;
- Develop incentives for high-skilled workers from abroad;
- Develop a transparent immigration policy based on the needs of the economy and the labour market;
- Create integration policy and requirements rooted in Austrian values;
- Enlist the help of other countries to stop illegal immigrants;
- Offer aid and protection to persecuted people;
- Increase spending on development and cut aid transfers for countries that do not facilitate the return of rejected asylum seekers;
- Expediate the asylum procedures;
- German language support for children;
- Demand-based immigration of skilled workers.

5. Die Grünen (The Greens)

The Green Party stands strongly behind universal human rights and opposes discrimination on the basis of nationality, religion, skin colour, gender, etc. They also stand behind diversity - the social integration of foreigners, migrants, and refugees is indispensable for a healthy democracy, as well as inclusive politics that seek dialogue to resolve conflicts. Integration is seen as "a key for social cohesion." The Greens are also strong Europeans above national interests. They view climate change, the migration crisis and social integration as urgent policy issues.

Specifically for migrants entering Austria, the Green positions are:

- Create safe and legal pathways, e.g., reintroduce the possibility to file an asylum claim abroad at embassies;
- Establish joint initial reception centres for asylum seekers that arrive on EU territory, from which refugees would be relocated within the European Union among all 28 member states
- Assure that admission procedures are transparent and understandable and that they take into account both the needs of Austria and the interests and hopes of immigrants;
- Include gender-based violence, such as female genital mutilations, as well as human trafficking as criteria for asylum;
- Perform qualification surveys among immigrants and refugees so that they can find adequate employment and benefit Austria with their skills;
- Assure speedy and affordable access to language courses;
- Use multiple languages in public education;
- Introduce the right to vote for third-country nationals at the local level (after several years of living in Austria).

B. Development of the migration scenario

The ABM simulation centres around a significant increase in immigration, drawing inspiration from the events that took place in Austria in 2015. We use the characteristics of the asylum seekers from that time to model the migrants in the ABM (Poledna et al., 2023b). However, for the purpose of the simulation, we assume that the people of this hypothetical migratory movement are granted asylum in Austria and have immediate access to the labour market if its members are of working age. Our primary focus is on examining the detailed labour market outcomes for various groups of the Austrian population (such as those who are employed, unemployed, inactive, or retired), which are further differentiated by sex, citizenship, and occupation. In total, the analysis spans over a thousand different cohorts. Ultimately, we seek to understand the macroeconomic implications of such a migration scenario.

V. Policy exercise development

A. Scenario presented to players

The scenario presented to the participants described the migration of people out of the MENA region precipitated by the severe impacts of climate change. This scenario is presented and expounded in the PE software platform through three different types of media. First, an introductory video clip was played at the beginning of the PE showing the dire situation in the MENA region leading to a migration crisis much more serious than that occurring in 2015, as well as Austria's potential role in responding to this emerging crisis. The video also links the role that researchers and scientists can play in the discourse surrounding this event, that is, by providing valuable knowledge on the impacts of migration using models to make more informed decisions and create better policies in response to these impacts. This video sets the stage for the meeting of the Migration Commission, i.e., the migration PE. Second, the scenario is brought to the attention of the participants through a newspaper article published within the platform that provides additional details of the migration crisis - drought and locust plagues are continuing to devastate the region, threatening livelihoods, and are only projected to become more severe over time. Finally, the scenario is made more concrete through a series of infographics that are found in the participants' "headquarters" on the platform. One infographic provides information on the impacts of climate change on societies, with a particular focus on the MENA region and African countries. Another infographic provides definitions of refugees, economic migrants and environmentally-displaced persons and their context within the international law framework. Finally, there is an infographic that shows the projected size, pathways and composition of the migration crisis arriving at Austria's border by 2024. To further enhance and smoothen the participants' experience, the main moderator helps the participants navigate the exercise by providing explanations, clarifying concepts, and suggesting data sources. These scenario elements are presented in the PE design document annexed to this report.

B. Factsheets

Additional information was provided to the participants through fact sheets sent via "email" within the PE platform, each of which is unique to the working group. Participants of Working Group 1, which is dealing with the topic of international aid, were provided with a fact sheet presenting the implication of a policy proposition to increase Austria's financial assistance to the MENA countries in the context of the migration scenario, juxtaposed to the Austrian Official Development Aid (ODA) in 2020 and the country's education expenses in 2019 to provide a sense of scale.

Participants of Working Group 2, dealing with the status of environmentally-displaced persons, were provided with the results of the macroeconomic agent-based model as described in this report. The model simulates the migration scenario where it is assumed that the environmentally-displaced persons are eligible to work in Austria under conditions similar to the current refugee status for the period of 2024-2028, and the business-as-usual economic scenario for the same period. The graphs in the fact sheet show the difference in the unemployment rates between these two scenarios by year, by gender, and by the industries of occupation most affected by the accommodation of environmentally-displaced persons into the Austrian labour market.

Working Group 3 is focusing on the rescue efforts in the Mediterranean Sea and their fact sheet contains information about the number of people who have taken the route through the Mediterranean Sea to reach Europe each year from 2014 to 2021, while also showing the number of people who have either died or gone missing on their voyage during the same period. The fact sheet also shows the number of people who have

been saved during rescue operations in the Mediterranean Sea since 2015. The fact sheets are included in the PE design document annexed to this report.

C. Voting procedure

The participants vote on the policy proposition assigned to their respective working groups. Furthermore, during the last voting stage, participants can propose new policy propositions that they then vote on as well. Once the voting process is opened, participants are able to change their votes at any time until the voting process is closed. The votes are public, so everyone can see how each role (in the PE) voted on their respective working group's policy propositions. There are distinct stages in the PE where the participants are informed about the voting process. The first stage of voting is when the participants are to make their preliminary vote on their respective working group's policy proposition before any collective discussions take place. The second stage of voting is after they have been informed that the "Information Centre", a non-playable character (NPC) in the PE, is monitoring the voting procedures and that the participants have a chance to change their vote if they would like to do so. In between Stage 1 and Stage 2 of voting, the participants receive three news articles and one email unique to their respective working groups. The working group news articles are loosely based on the grid-group cultural theory (Verweij et al., 2006). The email contains the fact sheet mentioned in the previous section. After the voting in Stage 2, the Information Centre publishes feedback, both positive and negative, on the current state of votes in the form of news headlines. Finally, Stage 3 of voting enables the policy proposition stage, at which participants can propose entirely new policy propositions, also including proposing amendments to existing ones. These are not automatically included among the existing policy propositions, as the proposed/new policy propositions need to be 'supported' with at least 75% of votes before making it into the final voting stage. If successfully supported, their voting options are binary, limited to 'Yes' or 'No'. Subsequently, this is the last opportunity for the participants to finalise their votes on all policy propositions after all the workgroup discussions, and before voting is closed. After voting, the votes are reviewed. After this, the participants enter the debriefing phase of the PE. The examples of the working group news articles and headlines are provided in the PE design document attached to this report.

D. Debriefing questions

For the debriefing phase, we used Terry Borton's model of reflection (Borton, 1970). The following questions are asked to participants by the main moderator, with support from the operator as a co-moderator. The questions, 'What?' and 'So what?', are asked to each working group separately, culminating with the question 'Now what?' to all participants. (NB: The migration PE was introduced to the participants as a "Policy Simulation Game" and is reflected in the questions below.)

What?

Results overview

- Express your experience in one word or phrase
- What happened?
- How did you feel?

So what?

Reflection on the simulation experience

- Goals:
Did you set goals that you wanted to achieve? If so, what were they? Were you able to achieve them in whole or in part?

- Challenges:
Did you encounter any problems or challenges? What were they? How did you overcome them? Were there barriers you could not overcome?
- Agreement reached:
Are you satisfied with the final policy outcomes?
- Relationship with other roles:
Who did you work well with? Who did you struggle to cooperate with?

Now what?

Bridging with the Real World

- Policies developed in the simulation:
Could they be enacted in the real world? Why not? What would be needed for them to be enacted? What would be their effects?
- Lessons learned:
What have you learned from this experience? How has your understanding of different positions on climate migration policies changed (if it did)?
- Simulation feedback:
What are the benefits of this simulation? What are its weak points? How could the simulation be improved? How such an approach could be used to support real stakeholders?

E. Evaluation questionnaire

For identifying the learning effects and outcomes of the PE, an evaluation questionnaire was devised by the project team and provided to the participants at the end of the PE. Ideally, it would provide insights, such as the role and integration of pieces of information, that could improve the PE. The full survey questionnaire is annexed to this document, while the summaries of the responses are found in the next section.

VI. Policy exercises

A total of four PE sessions were carried out during the project, including a pilot. There were 13 participants for the pilot session and 10 participants each for the succeeding sessions, bringing the total to 43 participants. The three sessions were participated by students and researchers from the Universität Wien and IIASA's Young Scientists Summer Program (YSSP). An evaluation questionnaire was provided to the participants at the end of each PE session and a total of 23 out of 43 (43%) responses were collected. Below are the summaries of the responses from the evaluation questionnaire. (NB: The Migration PE was introduced to the participants as a "Policy Simulation Game" and is reflected in the questions below.)

A. Pilot session

Consortium partners & IIASA staff – 22/02/2022 (5 respondents)

For the pilot session carried out in February 2022, participants included researchers and administrative staff, in the age bracket of 35 – 64. They participated in both Working Groups 1 and 2, giving them the possibility to compare experiences.

Neither of the two working groups designate a leader for the discussions, at the same time, there seemed to be no conflicts among the participants. They managed to broadly achieve a common understanding of the challenges connected with the migration crisis and come to an implicit agreement in regard to established solutions. Players were open to compromises “made to reach a consensus” and “to find a solution without losing [*sic*] the voters”.

Overall, the respondents described themselves as moderately willing to share both their character backgrounds and their own personal opinions with the other participants. The discussion seemed dominated by one or a few actors. One of the respondents even described their group as “quite reluctant [to speak]”. The reason behind that was reportedly a “lack of time to comprehend the game flow and tasks we were asked to do”, and a “lack of time for discussion”.

Some responses pointed to a high level of immersion during the game: “Since I represent my party, I am willing to compromise to certain extent [*sic*]”, “Making the right decision based on facts and discussions, of course taking into consideration your party's line”, “incorporate the party line in the discussions, but also to exchange with other party members”, “[it was hard to] coordinate between party members...”. Again, the issue of time emerged among the responses – “we just started talking about compromises or how to go forward and when to change what in the future, but then the game came to an end.” Time pressure was pointed out as the main obstacle to conducting effective discussions, learning information, and broadly “studying the decision environment”.

Concerning the use of data provided in the fact sheets, the most frequently reported causes of lack of data use were problems with time and access. The respondents used the provided information „a bit, but only what we were given in the first place”. They opted also to use their own general and academic knowledge. However, the resources available in the library were described as “interesting” and conducive to discussions. The interface and graphics were deemed effective tools for accomplishing the role tasks and performing in-game operations, although timing continued to be a recurrent issue. Moderators were described as helpful, providing the necessary “explanation time to understand what to do and where/how to do it.”

The exercise and experience were described in positive terms, time constraints notwithstanding. Most respondents found it beneficial for the learning process as well as the sharing of knowledge between participants. It was deemed an interesting tool “to condense the main constituents of the problem complexity”, a “good way to have a debate with the students” and to “debunk the myths of climate migration”, or “illustrate the complexity of the problem and [learn to] base arguments on facts”.

B. Sessions with students

First session - 20/05/2022 (7 respondents)

The survey respondents from this group, aged between 25 and 54, were researchers and students. Both working groups were represented equally in the survey.

Based on the responses, the dynamics within both working groups proved to be quite different. No clear leadership was observed in Working Group 2. Meanwhile, respondents from WG1 unanimously pointed to a leader in the discussions, the ÖVP player. A high level of roleplay could be identified in which this participant “claim[ed] to represent the biggest party in government giving him a legitimacy to lead and moderate”; “it was always emphasized that as the chancellor's party, you have leadership responsibility. It was clear that no majorities could be achieved against the will of the ÖVP.”

The discussion process was described as dynamic, with most respondents asserting that everyone had the chance to share their stances. This, however, led to some conflicts, “disagreement on policy content” with “varying degrees of willingness to negotiate” between the participants. The respondents pointed out their own limited willingness to share information and opinions with others (some even marked it as low as 1 or 2 on a 1-5 scale). Unsurprisingly, therefore, the level of common understanding and policy consensus achieved during the PE was not high - described as only achieved between small groups of participants. One respondent had this to say about their working group discussions: “Since we weren't able to find solutions for the two main questions of the simulation, we found a compromise and voted for an Austrian migration research program.”

The political party agendas were pointed out as the most important driver of personal decisions, the main challenges being “overcoming political differences in terms of problem framing” within the PE’s tight time constraints. Also, points about populism were raised (“decisions are not made on the basis of facts, but whether the decision is popular or not”). Some survey responses were framed entirely diegetically. For example, “The Green Party (as well as the SPÖ to some degree) proposed policies that simply could not be backed by either the ÖVP or the FPÖ.”, “Not agreeing to [*sic*] much with the FPÖ during the discussion but at the same time following basically the same ideological goals.”

Another issue emerged, namely regarding the use of provided data. Based on the responses, both their accessibility and usefulness in discussions were limited. Some respondents claimed to have used the information, but overall the survey showcased a lack of both time and the need for the players to familiarise themselves with the data (“data did not seem relevant; not able to put it into context”).

The respondents were content with the PE interface and facilitation, although they pointed out that more time would be needed for better preparation, learning the relevant facts, and thoroughly exploring the different features of the platform.

Nevertheless, the PE experience was primarily described as helpful in better understanding the complexity of the underlying systems. Among its benefits, immersive and politically motivated answers continued to dominate: “I have learned about the various Austrian political parties and their program/stance”, “[it was good to] learn different perspectives on this issue from others”, to learn the “positioning of parties [and] how working groups in politics might work”. The central role of “political ideologies, norms and values”, and the ability “to “play” a role and support views that are not strictly yours” were singled out as PE advantages, helping “to understand how different political actors and parties act in such an environment and which problems arise”.

As shown by the responses provided, the whole experience motivated participants to further engage with and to “continue to work at the science-policy interface to provide facts and frameworks that support effective decision-making processes”.

Second session - 27/06/2022 (4 respondents)

The survey respondents were within the 18-24 age bracket.

When describing the PE discussions, participants pointed out that everyone had the chance to say how they saw the presented problems. No conflicts were observed, and two players emerged as main drivers of dialogue within the PE - SPÖ and NEOS - facilitating discussion, testing the boundaries of the game, and proposing and counter-proposing policies. The respondents themselves were willing to compromise and provided examples of decisions made in the PE to this effect. Finally, respondents indicated a mutual understanding of the presented issues, achieving also a consensus. The players kept in mind the parties' programmes, while discussions were headed towards “satisfying all of the parties”.

In terms of the PE environment, it was deemed highly user-friendly with effective graphic designs and helpful facilitation. However, a suggestion to reduce the complexity of discussions and interface was raised (“in general there are too many buttons”) - along with the suggestion to make policy and voting options more flexible.

Overall, the respondents saw the PE as an effective tool for gaining knowledge on environmental migration and differing opinions on the related policies. The experience helped them to understand the complexities of these issues and the underlying systems.

Third session - 13/07/2022 (7 respondents)

The respondents of this survey were mainly early career researchers and students in the 25 - 34 age group. They mainly represented one working group (WG2).

Generally, participants showed a tendency towards being open in the discussions, sharing both information on their party programme, as well as personal opinions. However, this led to “little group cohesion”, and talks were described as “hefty”, “chaotic”, and definitely “not coordinated by a leader” (although some participants were reported to be “more vocal than others”). Conflicts were clearly observed, with “basic arguments relating to fear and negative emotions rather than facts given by models”. These populist arguments were “hard to counter for the opposition”, with several differing opinions and policy options.

Participants described themselves as willing to compromise “in order to make the discussion evolve”, because “it’s the only way to get anything done.” However, this willingness to achieve consensus was somewhat mercenary, with some respondents “not willing to compromise if the proposed actions are against party lines.”

The debate “quickly became ideological and guided by Whataboutism, particularly regarding the current war in Europe and inflation”. It was “easy to argue your way out of responsibility” and “argue for populist/conservative ideology”, leading to low levels of mutual understanding. Some agreements between smaller groups of participants were identified (“coalition-building was helpful”), but if a final consensus emerged respondents described it as vague and implicit.

In terms of decision drivers, a high level of immersion prevailed. Party programmes reportedly played a substantial role in forming the players’ positions during discussions. “I was advocating what I viewed as the NEO position”, keeping in mind “party lines, if I get re-elected, if my decisions will reflect good on me among my electorate”. However, lacking knowledge and understanding of the party positions on issues presented was one of the major challenges to players towards achieving full immersion in discussions – “[not knowing] how much should be compromised or not compared to the party guidelines”; “I did not feel like I understood my party’s position well enough to be able to explain it.” Also limits in the usage of [data] provided within the PE could be observed. Reportedly, there was not enough time to familiarise themselves with the fact sheets, and little opportunity to bring them up in discussions (although some respondents provided examples of reaching for them to facilitate the discussions).

Nevertheless, respondents reported extensive insights on the problems outlined in the PE, namely on environmental migration, related co-benefits and trade-offs of various policy options. The PE was described as providing a “good learning outcome on negotiation processes”, a good experience in understanding “how complex the issues are, the need to simplify, and the important but limited role of scientific model and other ‘facts’”.

Ultimately, the PE experience was described as effective, very user-friendly, and overall enriching: “I learned about the Austrian political parties and their stances on immigration, which was very interesting.” “Putting myself in different shoes and understanding how easy it is to push simple populist messages instead of engaging in positive policy-making”.

VII. Summary

The initial sessions of the migration Policy Exercise have shown promise and challenges in combining an agent-based model (ABM) with a policy exercise to facilitate policy discussions on migration. The ABM results not only provided valuable insights during the participants’ deliberations but also were influential as fact sheets that led to the emergence of a consensus on this complex policy issue. At the same time, many participants reported a lack of reliance on the fact sheets including those produced by the model. A main concern appeared to be enough time to grasp the complex migration data. This observation suggests that the PE be extended, for instance, by allowing participants to explore the fact sheets and library before the session.

Participants found the migration PE to be an effective tool for gaining knowledge on environment migration and the different viewpoints on related policies. Additionally, the experience helped them to comprehend the

intricacies of these issues and their underlying systems. The next potential step for the migration PE is to conduct sessions with Austrian stakeholders to inform genuine policy processes, such as political party members and public officials. Additionally, we are working on an academic paper that will propose a discourse analysis methodology for examining the PE discourses on migration in the Austrian context. To pilot this methodology, we will utilise Austrian party positions and the discussions that arose from the initial sessions.

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PARTY PROGRAMS

Each player gets the party program of his/her own party.

SPÖ (Social Democratic Party)

Austria's Socialist Party (SPÖ) has a long tradition of promoting a strong government that supports social solidarity, social security, participation, grassroots organizations, and freedom from violence as prerequisites for a thriving society. It strongly believes in a secular society, and religion should not be part of politics. Nor should discrimination be tolerated. These values translate into the view that migration should be "humanitarian, solidary, consequent".

In practice, the Socialists emphasize the importance of integration and limits on migrants - working within the EU. Specifically for immigration, this means:

- The number of refugee arrivals to Austria has to be reduced to a level that makes integration possible (the Austrian government limited arrivals to 37,500 after 2015);
- Asylum seekers and refugees should receive free language and skills training, job application support, qualifications checks, programs aimed at preventing radicalization, and more;
- A clear plan for cooperation with African countries, perhaps even an EU Marshall-Plan, is needed;
- The EU needs to protect its external borders. Refugees whose claims are granted should be relocated within Austria and the EU, others should be returned to their countries; and
- A joint European asylum system ought to be developed.

FPÖ (Freedom Party)

The FPÖ stands for preserving Austria's culture, values, and traditions, and thus guarding its sovereignty and self-determination. This means protecting Austria's borders — "Austria is not a country of immigration." On the domestic front, the FPÖ is strongly individualistic and supports the free market, private property, and individual freedom.

Specifically for immigration, the FPÖ positions are:

- The right to asylum in Austria is only granted if the claimant did not reach Austria by traveling through a safe third country (note: Austria is a landlocked country and surrounded by safe third countries);
- All financial incentives for claiming asylum in Austria should be eliminated — by cutting social spending and by switching to non-cash benefits;
- Foreign students should be restricted in order not to jeopardize the success of Austrian children;
- Humanitarianism must not jeopardize Austrian interests; external aid should be restricted;
- No handouts: aid should only be administered to the extent that it allows one to fend for themselves; and
- Only those religions that respect the separation of church and state should be accepted.

NEOS (The New Austria and Liberal Forum)

The NEOS is a center-left party that describes itself as representing a political culture of respect, undogmatic solution orientation, and freedom of expression. It is opposed to the FPÖ and ÖVP 'scaremongering' about the migrant issue, although the party is concerned about issues such as the isolationism of migrants and their sometimes tendency to oppose Austrian values. The NEOS is committed to democracy (new forms of participation), rule of law, environmentally sustainable free

markets, freedom, personal responsibility, and diversity. The NEOS support strong action against climate change, a carbon tax, and international environmental law. The party is soundly pro-Europe. In practice, the NEOS support:

- Stronger border controls;
- Improved integration of the first, second, and third generations of immigrants;
- Anti-discrimination on the basis of nationality;
- The creation of a government department dedicated to integration, developing solutions from kindergarten age to entry to the labor market;
- Faster and more efficient asylum procedures;
- Binding return agreements with countries of origin in return for significantly increased development assistance;
- Requirement for asylum seekers to live in their assigned town;
- Benefits of Schengen area only for those EU countries that share responsibility for migrants.

ÖVP (The new People's Party)

The ÖVP, traditionally Christian conservative, underwent a major shift to become more individualistic after the last election. Self-responsibility, voluntary support for those in need, and helping people help themselves through employment gained emphasis within the Party. Two campaign issues appear to dominate the popularity of the party – a crackdown on illegal immigration and a fight against political Islam. The Party manifesto points out that migration policy could in the long-term save Austria up to 1.5 billion Euros, which could be used to increase development aid to ease the migration pressure. The ÖVP claims to support aid and protection to persecuted people.

Concretely, the ÖVP positions are:

- Halt illegal migration;
- Develop incentives for high-skilled workers from abroad;
- Develop a transparent immigration policy based on the needs of the economy and the labor market;
- Create integration policy and requirements rooted in Austrian values;
- Enlist the help of other countries to stop illegal immigrants;
- Offer aid and protection to persecuted people;
- Increase spending on development and cut aid transfers for countries that do not facilitate the return of rejected asylum seekers;
- Expedite asylum procedures;
- German language support for children;
- Demand-based immigration of skilled workers.

Die Grünen (The Greens)

The Green party stands strongly behind universal human rights and opposes discrimination on the basis of nationality, religion, skin color, gender, etc. They also stand behind diversity - the social integration of foreigners, migrants, and refugees is indispensable for a healthy democracy, as well as inclusive politics that seek dialogue to resolve conflicts. Integration is seen as "a key for social cohesion." The Greens are also strong Europeans above national interests. They view climate change, the migration crisis, and social integration as urgent policy issues.

Specifically for migrants entering Austria, the Green positions are:

- Create safe and legal pathways, e.g., reintroduce the possibility to file an asylum claim abroad at embassies;
- Establish joint initial reception centers for asylum seekers that arrive on EU territory, from which refugees would be relocated within the European Union among all 28 member states
- Assure that admission procedures are transparent and understandable and that they take into account both the needs of Austria and the interests and hopes of immigrants;
- Include gender-based violence, such as female genital mutilations, as well as human trafficking as criteria for asylum;

- Perform qualification surveys among immigrants and refugees so that they can find adequate employment and benefit Austria with their skills;
 - Assure speedy and affordable access to language courses;
 - Use multiple languages in public education;
 - Introduce the right to vote for third-country nationals at the local level (after several years of living in Austria).
-

INTRODUCTORY ARTICLE

Presented to all participants to expand the idea presented in the introductory clip.

A bleak streak in the Middle East and North Africa

Weather conditions in the Middle East and North Africa have never been easy, but recent events raised the stakes even higher than before. The regions have been afflicted by droughts and locust plagues so severe that they even threaten livelihoods. Authorities in most of the affected areas declared states of emergency. Unfortunately, climatologists and other experts predict the situation may become even more extreme with time. The Helsinki Foundation for Human Rights issued an appeal to the United Nations, the European Union, and the United States to take action and offer humanitarian aid. The eyes of the entire world are turned towards the Mediterranean Sea as what will unfold there is likely to have consequences for everybody, everywhere.

A bleak streak in the Middle East and North Africa

Source: https://s10.geograph.org.uk/photos/06/69/066941_13279127.jpg



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the situation may become even more extreme with time. The Helsinki Foundation for Human Rights issued an appeal to the United Nations, the European Union, and the United States to take action and offer humanitarian aid. The eyes of the entire world are turned towards the Mediterranean Sea as what will unfold there is likely to have consequences for everybody, everywhere.

WORKGROUP QUESTIONS/ANSWERS

Workgroup 1

Question

- To what extent should Austria increase its assistance to MENA countries in light of the climate-related food crises?

Answers

- 100% of current assistance (no change)
- 150% of current assistance
- 200% of current assistance

Workgroup 2

Question

- What should be Austria's position in the EU deliberations on creating a new classification of migrants to be called 'environmental' migrants, who are forced to leave their homes because of climate-related extremes, and which gives them automatic 'asylum' or refugee status and full access to the Austrian labor market?

Answers

- No special classification of environmental migrants; rather, continue treating them as regular economic migrants or as displaced persons eligible for temporary subsidiary protection.
- Create a new classification of environmental migrants that qualifies them for asylum.

Workgroup 3

Question

- Should Austria support (financially and politically) Mediterranean sea rescue efforts, and relax its own border controls?

Answers

- Full support and relaxing border controls
- Limited support and limited relaxation of border controls
- No support and no relaxation of border controls

Revised questions:

- A: Should Austria support Mediterranean sea rescue missions, e.g., by lobbying the EU to de-criminalize NGO rescue efforts, and refrain from sending asylum seekers back to their country of departure? Y/N
- B: Should Austria strive to limit refugees entering the country, e.g., by tightening control of its borders and – in violation of the Geneva convention – setting a limit on persons granted asylum in Austria? Y/N

WORKGROUP ARTICLES

Each workgroup gets three short articles (1 paragraph) that emphasize different attitudes toward the problem that is tackled by a specific workgroup. They are loosely connected with the CT theory.

W1 (International aid)

W1Egalitarian

Are we responsible?

In the wake of the recent events in the Middle East and North Africa, we are already seeing an increase of migrants fleeing the impossible living conditions brought about by droughts and locust infestation. There is little doubt that these conditions have been worsened by climate change, and we in the industrialized countries have contributed to this global problem far more than MENA countries. International humanitarian aid to the victims of climate change is our moral responsibility.

W1Hierarchical

Systemic failure

Disasters unveiling in the Middle East and North Africa show how fragile the states in this area are. Droughts, locust infestation, and other problems are tipping points between frail existence and total collapse of the local economies. The problem is real, but it is not for Austria to solve alone. We need cooperation in the EU for a major assistance package that will support the local economies and keep desperate persons from migrating to Europe.

W1Individualistic

Costs and benefits

Countries in the Middle East and North Africa deal with severe problems that are related to climate change. These facts cannot be denied, and we know that people are suffering. Humanitarian aid for the ones struggling to survive is important, but we have to be sure it is effective. We should not invest money into aid that will only conserve the structures that are not sustainable in the long term. We should also consider tradeoffs, ie, we need a strong economy to help others. For this reason, we should carefully consider the alternatives.

W2 (Migrants status)

W2Egalitarian

Are we responsible?

In the wake of the recent events in the Middle East and North Africa, we are already seeing an increase of migrants fleeing the impossible living conditions brought about by droughts and locust infestation. There is little doubt that these conditions have been worsened by climate change, and we in the industrialized countries have contributed to this global problem far more than MENA countries. Allowing climate-impacted people to find refuge in our country and providing them the opportunity to sustain themselves is the least we can do. It means taking responsibility for the problems that we have largely created.

W2Hierarchical

Systemic failure

Disaster unveiling in the Middle East and North Africa shows how fragile the states in this area are. Droughts, locust infestation, and other problems are tipping points between frail

existence and total collapse of the local economies. The problems are real, but they are not for us to solve alone. We have to work with the EU in devising clear guidelines on the number of refugees and displaced persons entering each member country, as well as clear procedures for their integration.

W2Individualistic

Costs and benefits

Countries in the Middle East and North Africa deal with severe problems that are related to climate change. These facts cannot be denied, and we know that people are suffering. Giving hope and opportunities for struggling people is important but we have to consider our decisions in the context of what is possible from the point of view of our economy, which should not bear the consequences of systemic failures of countries in the Middle East and North Africa. Indeed, we need to look for win-win solutions, for example, skilled migrants, that benefit those suffering and also our own economies and well-being.

W3 (Rescue effort)

W3Egalitarian

We are responsible

In the wake of the recent events in the Middle East and North Africa, we are already seeing an increase of migrants fleeing the impossible living conditions brought about by droughts and locust infestation. There is little doubt that these conditions have been worsened by climate change, and we in the industrialized countries have contributed to this global problem far more than MENA countries. Helping people fleeing from these appalling conditions is the least we can do in the current situation. It means taking responsibility for the problems that we have created.

W3Hierarchical

Systemic failure

Disasters unveiling in the Middle East and North Africa show how fragile the states in this area are. Droughts, locust infestation, and other problems are tipping points between frail existence and total collapse of the local economies. The problems are real, but we cannot solve them in Austria, that is, we cannot take sole responsibility for hundreds of people trying to cross the Mediterranean illegally in fragile boats. Rather, we should work with the EU in devising a strong framework for curbing illegal migration across the Mediterranean. To address the immediate situation, we should send back all migrants who do not qualify as refugees and who are taking illegal routes into the EU.

W3Individualistic

Costs and benefits

Countries in the Middle East and North Africa deal with severe problems that are made worse by climate change. These facts cannot be denied, and we know that people are suffering. Still, by providing assistance to those making a dangerous journey, we are incentivizing more persons to try to illegally make their way to Europe. A far better alternative is to assist them in their own countries, also by setting up processes for their legal migration.

RESPONSE ARTICLES

Short headlines that give workgroup participants both positive and negative feedback based on the choice that they made within the workgroup through a mid-game opinion poll.

W1 (International aid)

- **No increase**
 - Saving the money, not the people in need
 - No reward for failed countries

- **Some increase / Significant increase**
 - Taking responsibility for the problems we created
 - Rewarding failed countries for their inaction

W2 (Migrant status)

- **Refugee status**
 - Sharing opportunities with the ones in need
 - Our workers will have to bear the costs

- **No change in status**
 - Leaving the ones in need on our doorstep
 - Urging countries to take responsibility for their citizens

W3 (Rescue effort)

- **Full support / Limited support**
 - Some help for the survivors
 - Encouraging illegal migration on the Mediterranean

- **No support**
 - Leaving people to drown
 - Discouraging the illegal migration on the Mediterranean

EXAMPLES OF ARTICLES

(as they will be shown in the policy exercise interface)

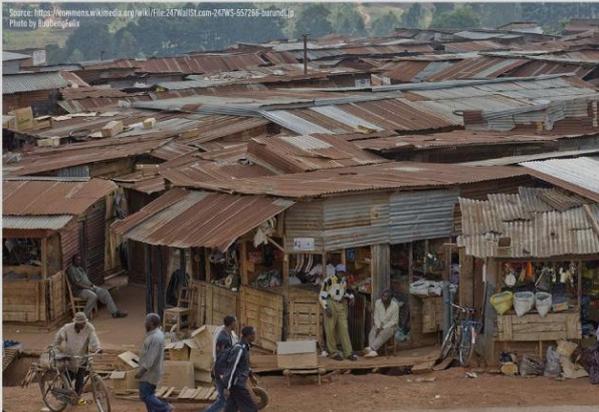
Are we responsible?



In the wake of the recent events in the Middle East and North Africa, we are already seeing an increase of migrants fleeing the impossible living conditions brought about by droughts and locust infestation. There is little doubt that these conditions have been

worsened by climate change, and we in the industrialized countries have contributed to this global problem far more than MENA countries. International humanitarian aid to the victims of climate change is our moral responsibility.

SYSTEMIC FAILURE



Disasters unveiling in the Middle East and North Africa show how fragile the states in this area are. Droughts, locust infestation, and other problems are tipping points between frail existence and total collapse of the local

economies. The problem is real, but it is not for Austria to solve alone. We need cooperation in the EU for a major assistance package that will support the local economies and keep desperate persons from migrating to Europe.



Refugees crossing the Mediterranean sea on a boat, heading from Turkish coast to the northeastern Greek island of Lesbos, 29 January 2016. Photo by Mityslav Chernov.

Costs and benefits

Countries in the Middle East and North Africa deal with severe problems that are made worse by climate change. These facts cannot be denied, and we know that people are suffering. Still, by providing assistance to those

making a dangerous journey, we are incentivizing more persons to try to illegally make their way to Europe. A far better alternative is to assist them in their own countries, also by setting up processes for their legal migration.

INFOGRAPHICS - GENERAL

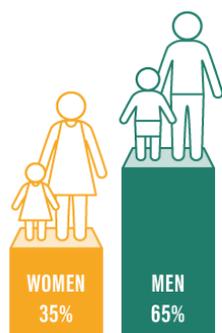
These infographics can be accessed by all participants at any moment during the policy exercise.

Migration scenario

This is to inform participants about the potential migration of environmentally displaced persons into Austria due to probable climate-induced disasters. This is also the starting condition of the ABM model on policy migration.

MIGRATION SCENARIO

MIGRATION SCENARIO BY GENDER



MIGRATION DIRECTIONS



In this scenario, drought and locust infestation will devastate the MENA region from the beginning of 2023 to mid-2024. It will induce massive crop failures and will drive people to search for better opportunities. As a result, an unprecedented number of environmentally displaced persons of around two hundred and fifty thousand individuals is anticipated to arrive in Austria.

Law and regulations

Information about the current international law and definitions of refugees/environmentally-displaced persons.

DEFINITIONS



REFUGEES

Refugees are forced to flee because of a threat of persecution and because they lack the protection of their own country.



ECONOMIC MIGRANTS

A migrant may leave his or her country for many reasons that are not related to persecution, such as for the purposes of employment, family reunification or study.



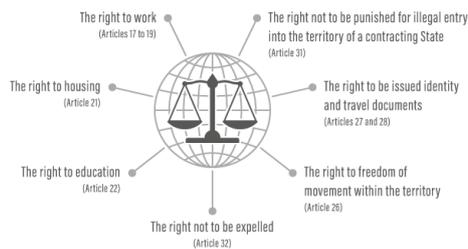
ENVIRONMENTALLY DISPLACED PERSONS

Environmentally displaced persons leave their homes for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions.

RIGHTS OF REFUGEES according to the Geneva convention

INTERNATIONAL LAW

RIGHTS OF ENVIRONMENTAL MIGRANTS



No widely accepted legal definition of environmental migrants.



No international consensus about the treatment and rights of climate migrants.

Displaced persons can seek temporary subsidiary protection. Those persons displaced due to climate change risks have no additional status.

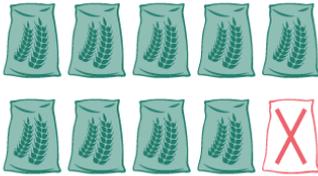
Sources:
https://www.iom.int/jh/a/webdav/shared/shared/mainsite/about_iom/en/council/54/MC_INF_288.pdf
<https://www.refworld.org/pdfid/4ee4a702.pdf>

Climate change and migration

Information about the climate crisis in the MENA region and its effects on the agriculture and living conditions of inhabitants

PROJECTED CLIMATE IMPACTS ON MENA COUNTRIES

FOOD DEMAND, SUPPLY AND ASSETS



For every 1°C rise in temperature above historical norms, grain production will drop 10%.

ENERGY DEMAND, SUPPLY AND ASSETS



Stress on the water-food-energy nexus will increase with the rising temperatures, as demand for water and energy grows, constraining development and escalating competition for resources. This in turn could elevate the security risk globally.

WATER DEMAND, SUPPLY AND ASSETS



Most MENA countries are already water-scarce and more countries, including South Africa and parts of China and India, are projected to reach this state by 2025.

AFRICA

EFFECTS ON COMMUNITIES

MIDDLE EAST



More than 30% of the world's refugees and displaced persons are Africans and as many as 200 million people from 25 African countries have suffered severe food shortages pushing them on the "verge of calamity."



Direct and indirect impacts of climate change, from rising temperatures to severe flooding, will increase the scope and severity of diseases endemic to Africa, such as malaria, dengue, and cholera.



When climate changes significantly or environmental conditions deteriorate to the point that necessary resources are not available, societies can become stressed, sometimes to the point of collapse.



Reduction of precipitation will reduce river flows and threaten conventional agriculture in the region. Salinization of coastal aquifers will further aggravate this situation.



Reduction of precipitation of up to 60% in some areas may exacerbate tensions over water, and increase susceptibility to natural disasters.

Sources:
 CNA Military Advisory Board, National Security and the Threat of Climate Change (Alexandria, VA: CNA Corporation, 2007),
 CNA Military Advisory Board, National Security and the Accelerating Risks of Climate Change (Alexandria, VA: CNA Corporation, 2014)

INFOGRAPHICS - WORKGROUPS

These infographics are available only for the members of the workgroup.

WG1 (International aid)

An infographic containing current humanitarian aid and two possible scenarios when it is increased compared to the education spending per capita.

EDUCATION, ODA AND MENA ASSISTANCE

HOW DO WE ANALYZE THE SCALE OF THE POTENTIAL FINANCIAL ASSISTANCE TO MENA COUNTRIES?

We compare proposed values for the financial assistance to MENA countries with the Austrian official development aid worldwide for 2020 and the Austrian education expenditures (transfer in total) for 2019.

HOW DOES THE PROPOSED FINANCIAL ASSISTANCE TO MENA COUNTRIES COMPARE TO AUSTRIA'S 2020 OFFICIAL DEVELOPMENT AID (ODA) WORLDWIDE AND ITS 2019 EDUCATION EXPENDITURES?



WG2 (Migrants status)

The unemployment rate in the scope of the migration scenario, compared with the baseline scenario, i.e. business-as-usual situation from the period of 2024-2028, further divided by gender and labour sectors. These are the results of the migration policy agent-based model developed in the project.

MIGRATION AND AUSTRIAN UNEMPLOYMENT

HOW DO WE ANALYZE THE AUSTRIAN LABOR MARKET UNDER THE MIGRATION SCENARIO?

AN AGENT-BASED MODEL

representing Austria's economy is used to forecast the impact of migration induced by climate change.

THE BASELINE SCENARIO

is the forecasted business-as-usual economic situation for 2024-2028.

THE MIGRATION SCENARIO

assumes that all environmentally displaced people are eligible to work in Austria under conditions similar to the current refugee status during the same period.

WHICH SECTORS OF THE LABOR MARKET WILL BE AFFECTED THE MOST?

Differences in unemployment rates (%) between the baseline and migration scenarios for sectors of the economy: average over 2024-2028 period

No significant decrease (over 0,35%) in the unemployment rate in any of the sectors.

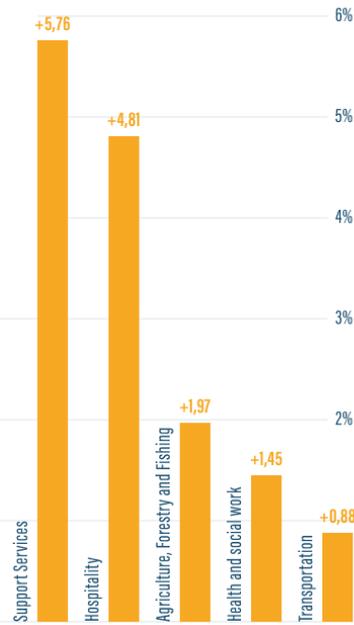
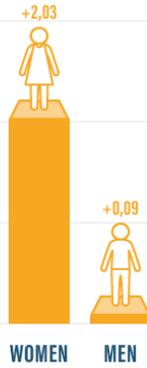
HOW CAN THE LABOR MARKET ACCESS OF ENVIRONMENTALLY DISPLACED PEOPLE AFFECT THE UNEMPLOYMENT RATE IN AUSTRIA?

Differences in unemployment rates (%) between the baseline and migration scenarios



WILL IT AFFECT WOMEN AND MEN IN THE LABOR MARKET DIFFERENTLY?

Difference in unemployment rate (%) by gender: average over 2024-2028 period



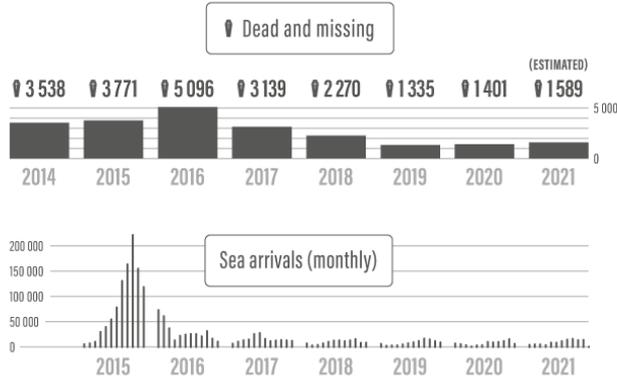
WG3 (Rescue effort)

Information about the rescue effort in the Mediterranean. Data obtained from the websites of the UN Refugee Agency (<https://unhcr.org>) and the European Council (<https://www.consilium.europa.eu>)

THE HUMAN IMPACT OF THE MEDITERRANEAN RESCUE EFFORT

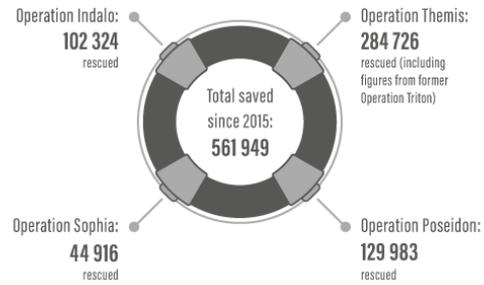
IN THIS COMPARISON, WE SHOW HISTORICAL REAL-WORLD DATA FROM THE MEDITERRANEAN ROUTE BETWEEN JANUARY 2014 AND DECEMBER 2021.

HOW MANY PEOPLE HAVE BEEN LOST ON THE MEDITERRANEAN ROUTE?



Source:
<https://data2.unhcr.org/en/situations/mediterranean>

HOW MANY PEOPLE HAVE BEEN RESCUED ON THE MEDITERRANEAN ROUTE?

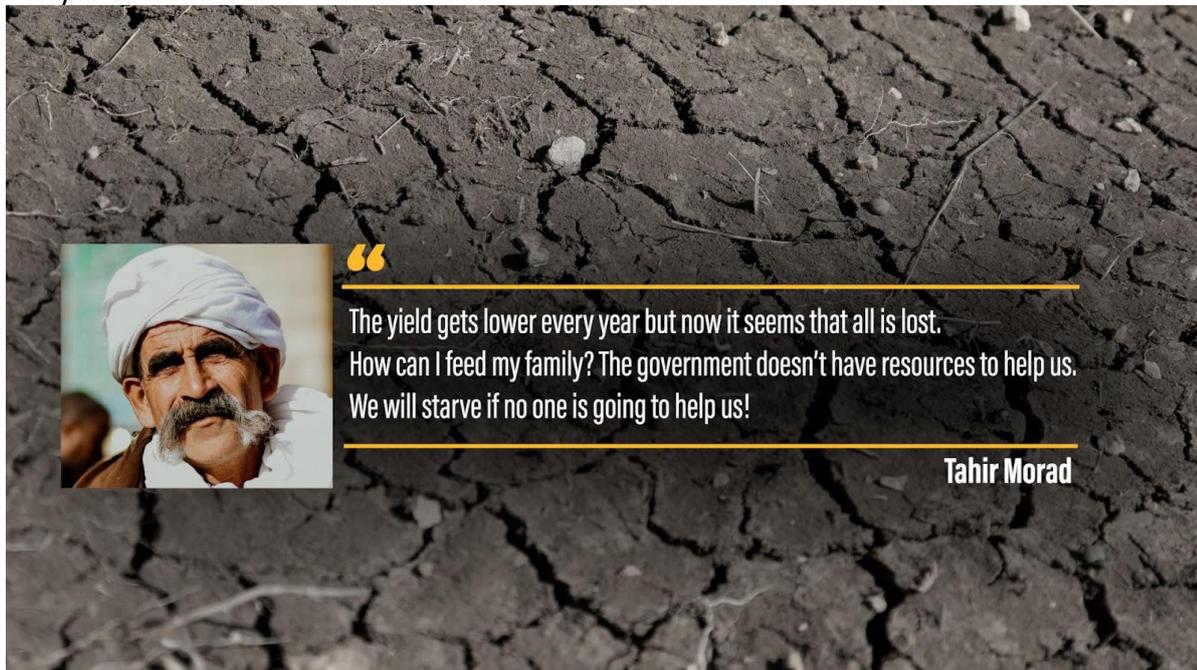


Source:
<https://www.consilium.europa.eu/en/infographics/saving-lives-sea/>

INTRODUCTORY VIDEO

Link: <https://vimeo.com/683714961/0f8bf5b3a0>

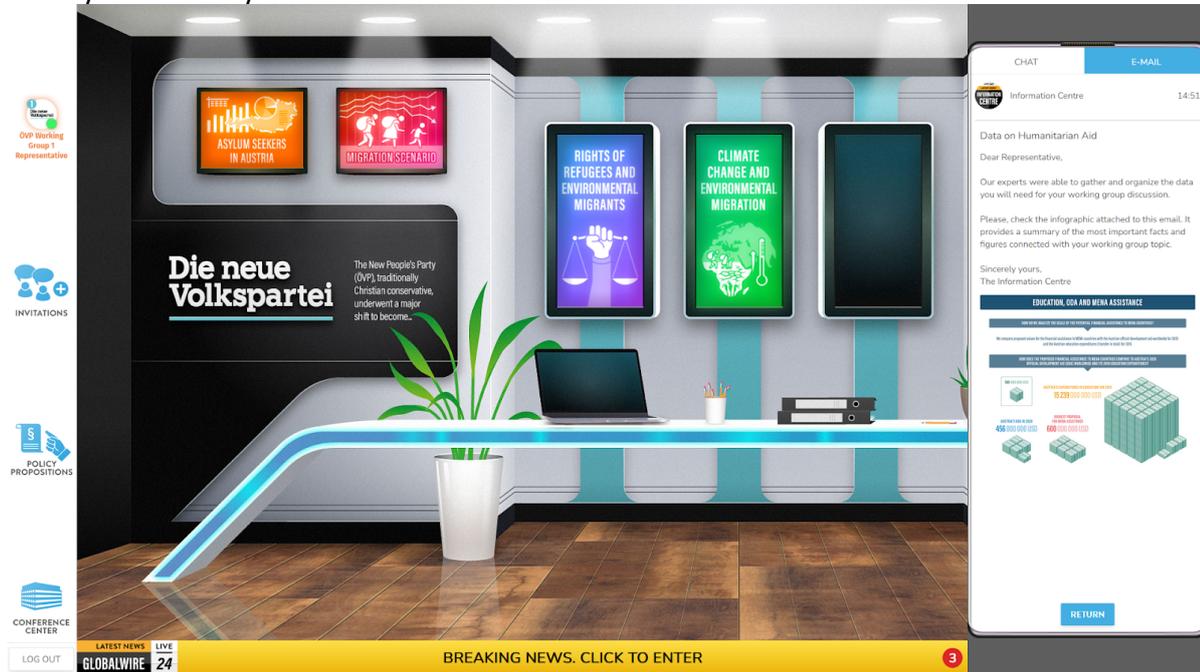
Sample screenshots:



POLICY EXERCISE

Sample Screenshots:

Participant's headquarters in the simulation



Policy voting panel

