



W21

**Wicked 21st:
Serious Fun!
For 3 - 7 Players**

GAME

RULE BOOK

We thank our partnering institutions for your time, effort and expertise to make this project a success.

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INTRODUCTION

Welcome to River City! This is where you live, work, and engage with your community. It's also where you experience every element of a complex human life, through your interaction with the social, political, economic, and ecological systems —whether you realise it or not.

As a resident of River City, you have a profession, and access to many different locations around town. Your professional skills determine which resources you have access to, with your efforts represented by cards of different suits. The task ahead will require work in all of those areas if you hope to succeed, and you'll need to work together with your fellow residents, coordinating resources and adapting to solve problems.

Each turn you'll choose problems to try to solve, but choose carefully: even solutions have the potential to cause other problems, and problems that are left too long have the tendency to multiply! It's going to take a lot of effort to get our ecological, social, and economic systems into a healthy and resilient state. Can you work together with your neighbours to create a future that isn't always on the brink of chaos?

Wicked 21st is a serious game that aims to expose players to the concepts of systems thinking, futures thinking, and collaboration. Each of these concepts have an entire academic field and thousands of practitioners worldwide, and none of them can be fully or accurately explored through a board game; but the mechanics of this game were designed to give players experience with some basic concepts, and this rulebook includes reference to further reading and resources from the companion course, *Managing Complexity in the 21st Century*.

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SETUP

Required To Play

- 2 decks of standard playing cards (54 cards per deck)
- 2 standard six-sided dice (2d6)
- Printed player mats, game boards, markers, and tokens

Setup Process

- Separate the decks of cards into four piles, by suit, including one Joker in each pile. $2 \text{ to Ace} \times 2 \text{ per suit} + 1 \text{ Joker} = 27 \text{ per suit} \times 4 \text{ suits} = 108$ cards total. Shuffle each pile.
- Each player must choose a Character Class, and no two players may use the same Class. This game allows 3 to 7 players, including the optional Observer role if 4+ players are active. Each player then should take the appropriate character mat.
- Randomly place 9 Crisis Markers using the dice system on the Tech Board. Important: Reroll duplications; do not cascade at this point (cascade explained later).

Understanding the Systems Map

The primary game board is referred to as the Systems Map. It is a simplification of flowchart that shows the relationship between systems. Each System is marked on this map with a three letter code inside a circle. Those systems are collected into categories each marked with a colour and a corresponding symbol.

GAME VARIANT: VARIED MAP

These problems are all interrelated, with flows from one problem to another. Those relationships are also simplified from the complexity of real life. You may disagree with these flows (or simply want a different challenge) - if so, keeping cause and effect in mind, make your own! You will also need to write a spreadsheet to show direct and indirect outflows, have fun!

Character Class

Each Player chooses a Character Class from the list. Each Class is associated with two suits of Skill Cards, as follows:

Class	Suit 1	Suit 2
Investor	Spades (Applied)	Clubs (Intellectual)
Social Worker	Clubs (Intellectual)	Hearts (Caring)
Educator	Diamonds (Creative)	Hearts (Caring)
Scientist	Clubs (Intellectual)	Diamonds (Creative)
Journalist	Spades (Applied)	Hearts (Caring)
Councillor	Spades (Applied)	Diamonds (Creative)

GAME VARIANT: OBSERVER ROLE

In 4-7 player games, one player may optionally serve as the **Observer role**, taking care of certain tasks (as noted below) and taking notes and reflections about the way the game progresses. This is mandatory only in a 7 player game, since all 6 classes would also be filled. The Observer does not interact In-Game (unlike all other characters), making this Observer perfect for teachers, facilitators, or those less attentive on gameplay themselves but vicariously helping other players reflect on their shared gameplay experience.

HOW TO PLAY

Turn Order

Each turn is divided into three phases, plus a turn end sequence. The turn order is as follows, but each element of it is explored in greater detail below:

1. Engage: Gathering Resources

- Each Player draws Money equal to the current state of the Economy, as measured by the state of the System Map (5 minus the number of Economic Systems in Crisis)
- Each Player draws 1 Skills Card from either suit of their Class, and 1 from any suit (which may include the same suit again)
- Set the Crisis Track to 5 (GAME VARIANT: set to 6 or more for increased difficulty, or to 4 or lower for less difficulty)

GAME VARIANT: ADJUSTED CRISIS RATE

Set the Crisis Track to 6 or more each turn for increased difficulty, or to 4 or lower each turn for less difficulty.

2. Activate: Attempting Projects and Funding Technologies

- Projects: Each Player may use their Skills Cards to attempt a Project
- Technologies: On each turn players may discard Skill Cards and pay money to advance a Technology on the Tech Board related to that suit.

NOTE: this is a SILENT PHASE played in parallel where players do not interact.

3. Reflect: Strategize with other Players and end the turn
 - Strategizing: Once each player has performed all Activate actions, the players may talk briefly about the coming turn and what projects and other activities would be best used to move forward. (Suggested 1 minute per player)
 - Perform Crisis Rolls as indicated by the Crisis Track
 - Finalise the Turn: move the Turn Tracker ahead by 1. If in turn 8, initiate the Conclusion.

GAME VARIANT: SHORTER/LONGER GAME

Decide at game start for fewer turns than 8 for a briefer game, or more turns than 8 for a longer and higher difficulty game.

Crises and Cascades

Each circular slot on the Systems Map represents a System upon which human civilization and life itself relies. These Systems will each be in one of three states.

- Neutral: the System seems to be working as normal, represented with no marker.
- Protected: there are interventions in place to support this System, represented with a Protection Marker.
- In Crisis: this System has no internal resilience left, and any increased stress will pass onto other Systems (a Cascade), represented with a Crisis Marker

Crisis Rolls

Aside from the starting point of the Crisis Track each turn, the track may also be increased by some Projects or Project Attempts (see below). The Crisis Track will reduce each time a roll for Stress is made and each time a System and all its direct outflows already have Crisis Markers, by one for each indirect downflow that has its state changed.

1. Roll two D6 to determine which System is affected, with one D6 indicating which category of Systems and the other D6 indicating which specific System may be stressed (suggestion: use colour coded dice and declare ahead which is for which)
2. When a System is selected, check first whether that System and all Systems that are directly downstream from it are in crisis already (Use the Cascade Table)
 - a. If the selected System is **not** already in Crisis, OR if it is in Crisis **and** any of the Systems directly downstream from it are Neutral or Protected, reduce the Crisis Tracker and roll 2D6 to see if the Crisis causes Stress to that System, a roll of 8 or higher does Stress the system. Place a Crisis Marker on a Neutral System affected this way, or remove a Protection Marker from a Protected System.
 - i. A System already in Crisis passes that new Stress along: any Systems directly downstream that are not already in Crisis are affected, place a Crisis Marker on any Neutral System directly downstream, and remove a Protection Marker from any System directly downstream.

- b. If the selected System is already in crisis AND all direct outflows from that System are ALSO in crisis, THEN do not roll. Instead of rolling reduce the Crisis Track by one for each indirect downstream System not already marked with a Crisis Marker, Place Crisis Markers on Neutral Systems and remove Protection Markers from protected systems, affect each in order listed once.
 - i. If all downstream Systems are already in Crisis or have had their protection removed in this process, and the Crisis Tracker is not at zero, then roll another System at random.

End Condition

If there are no spaces on the System Map that are not marked with a Crisis Marker and the Crisis Track is not at zero, the game immediately ends with the world having become incapable of sustaining a human society.

Simplification Note

Later in the game things may get a bit tedious. If you find in later turns you're teaching the end of indirect outflows and having to reroll more than once in a turn try checking all remaining nodes not in crisis and their inflows. Make your own fair way of randomly determining which directly accessible node or inflow you randomly test. Often by the time the game reaches this point there are 6 or fewer total so it should be possible to determine with only one die. Remember that Climate Change and Nitrogen and Phosphorus Loading are never directly reachable so include only their inflows in your short-hand randomising.

Important Note

It is the intended design of the game that there should be no further strategizing until the next Strategy Phase.

Projects

A Project is a way for players to use their Skills to solve a problem (ie. to remove a Crisis Marker from a System). Skills Cards allow attempts to implement a given project, spending 2 or 4 of the required types of Skill Cards to make an attempt (see Project Tiers). Once the required Skill Cards are spent, the Player then rolls 2D6 and a result equal to or less than the value of the card indicates a success.

Face cards (J, Q, K, A) have a value of 10 and a Joker is an auto-success! No roll is necessary and it may be played as a card of any suit. Jokers are discarded into the pile of the suit they are played as, regardless of which pile they were drawn from.

A Player may spend Money on Consulting Fees BEFORE making this 2d6 roll: each \$ spent in this way increases the value of their card by 1, up to a maximum of 11. Additionally, completed technology adds a bonus of +1 to all cards of a given suit (this stacks with consulting fees, still to a maximum of 11 total).

A roll of 12 fails automatically and also increases the Crisis Track. Cards that are successfully rolled against should be kept on the Player Mat for the Player that started the project to track successes; only discard these cards when a project is completed or is abandoned. Cards that have their rolls failed should be discarded immediately.

Projects are only completed when the Players use the right skills successfully. The skills needed for a given project are determined by which category of system it is intended to repair:

System Type	Cost (Skill Cards)
Industrial	Spades & Clubs
Economic	Spades & Diamonds
Living Standards	Spades & Hearts
Class	Clubs & Hearts
Environmental	Clubs & Diamonds
Social	Hearts & Diamonds

On the turn a project is initiated, only the initiating player may contribute cards to that project. On subsequent turns, ANY player may attempt to add skill cards to any project.

Each player can only initiate one active project, and must complete it or discard it before they can initiate another project. A player may place their character token on the Wicked Problem Map to indicate they are working on a project for that system. The player will record successful rolls for that project by keeping the cards they have successfully rolled against on their character mat.

Project Tiers

There are two tiers of Projects:

- A First Tier project requires 2 Skill Cards; 1 for each of the suits indicated in the table above. A successful roll for each card type results in the project being completed, repairing the chosen System in Crisis.
 - However, a First Tier Project represents a fast and cheap solution to a complex problem, which inevitably has negative tradeoffs, represented by increasing the Crisis Track.

- A Second Tier project requires 4 Skill Cards of the suits indicated, two of each type. Successfully completing a Second Tier project repairs the chosen System in Crisis, returning it to a neutral state or adding a protection marker if the appropriate technology has been researched.
- When they first make a Project attempt, a player MUST declare which tier the Project will be. A Project which is only partially completed will remain in a pending state until either it is successfully completed or until it is abandoned (which occurs on a turn where no player makes an attempt to add a success to that project). To indicate project tier it is easiest to place the first successful skill card on the final spot needed (2 or 4).
- If a Second Tier project has been pending for more than two turns, it is possible to cut it short. This requires that two or three successful attempts (of two different suits) have been made already. During the strategizing phase of the third turn, the Players may determine that it should instead be implemented as a first tier project. Its effects resolve immediately prior to the Crisis Rolls. (Imagine that project delays result in project planners cutting corners, with the result being the budget of a Second Tier Project but the effects of a First Tier Project!)

GAME VARIANT: SPECIFIC PROJECTS

Name your project something cool and fitting! Take inspiration from the name of your Class and the System you are trying to fix. Think of a real-life project/program that might address that issue, ex: Habitat for Humanity or Cooperative Housing Project. Consider a project name that reflects the first tier "fast yet unsustainable" approach, or second tier "resource intensive" approach. Do not allow repeating project names across the same game session. If the Observer role (or simply all other players) approve of this project name, gain a +1 bonus to the project attempt.

Technologies

There are 4 basic Technologies in Wicked 21st: one for each of the four suits of Skill Card suits, as represented on the Tech Tracker. Advanced technologies are applied on a System-by-System basis.

Technologies in Wicked 21st do not solve problems, as projects do, but they do make it easier to solve problems and eventually protecting systems from stress:

- Basic technologies add +1 to the card value on any roll made with a Skill Card of that suit. The total bonus maximum of 11 is still maintained.
 - E.g., when a Basic Technology has been applied to Diamonds, and a player rolls against a 9 of Diamonds, they must roll a 10 or less to succeed (9 for the card, 1 for the Technology)
- When the relevant suits have been researched, a System can be designated for an Advanced technology. This technology allows a successful Project to not just repair a crisis, but to also add a Protection marker to that System once per turn.
 - E.g., Clubs and Diamonds both have Technologies already in play. A player can then pay one card and \$1 to add a System technology to Climate Change. On the next turn, Climate Change is already in crisis; a player successfully completes a Project, changing Climate Change from a state of Crisis directly to a Protected state.

To develop a technology, a player must:

- Research: Pay \$1 and discard 1 card of the matching suit to the technology they are developing. This generates 1 success automatically (ie. card is discarded and no dice need to be rolled). Completing the technology requires 2 successes, and the bonus from the technology does not begin until the following turn.
- Each specific technology, basic or advanced, can only progress 1 success per turn and requires 2 successes to be completed (thus taking at least 2 turns).

- Characters can share resources (money or skill cards) towards the same technology, but still must follow the 1 success per technology per turn limit.
- Researching an Advanced technology requires that both suits for the given System's category must already have both Basic technologies completed, but still only requires \$1 and 1 card of either suit

GAME VARIANT: SPECIFIC TECHNOLOGIES

Name your Technologies! Like Projects, Technology could represent thousands of potential solutions to systemically help solve Wicked Problems. But that means there's plenty of room for you to imagine technology. Ask questions about your technology such as: does it help people collaborate better or include more stakeholders in the solution? Does it clarify with data or reframe problems or the complex situation in useful ways? Does it boost efficiency or coordinate many elements together? Is it a platform technology, like railways, smart grids, smart phones, or media networks? Do not allow repeating technology names across the same game session. If the Observer role (or simply all other players) approve of this project name, gain an additional +1 bonus to the Basic Technology bonus.

GAME VARIANT: OBSERVER ROLE

Each game must have at least 3 players, but may also have an Observer. An Observer's role is to watch how the game progresses, taking notes and reflecting on what they observe. They should ask themselves questions such as:

- How many turns did it take before problems began to cascade out of control?
- Did the players anticipate this? Were they prepared?
- How well are the players working together? Has a hierarchy developed among them, or another system of roles? Is everyone participating?
- Do players follow different strategies? Who is spending all of their money, and who is saving? Does someone invest a lot in technology, or focus

entirely on projects? Who takes more risks; who spends and solicits resources for consulting fees for more reliable bets?

The Observer can make a report to the Players at both the midpoint and endpoint of the game. Additionally, the Observer can help the players to focus on their strategy by taking care of some of the housekeeping each round:

- Updating the Turn, Economy, and Research Trackers
- Identifying which Systems are or will be affected by a cascade

Appendix A: Glossary

Advanced Technology -

technology researched after at least two basic technologies have been (those associated with the System to be researched). Once researched any time a Crisis Marker is removed from the System, also add a Protection Marker.

Basic Technology -

technology researched for each of the four Skill types, increasing the effective value on associated cards by 1 for the remainder of the game.

Cascade -

when a System that already has a Crisis Marker on it is Stressed that triggers a Cascade, every direct downstream System that is not already Marked with a Crisis Marker has one added, or has a Protection Marker removed if there is one on it.

Category

a group of systems connected by inherent properties.

- Industrial = Systems representative of impact through industrial activity, Wicked Problems indicate misuse or other destruction of physical resources.
- Economic = Systems representative of financial conditions, Wicked Problems indicate failure to support the majority financially.

- Social = Systems representative of community function, Wicked Problems indicate societal divide.
- Class = Systems representative of physical needs of people, Wicked Problems indicate logistical and disastrous loss of ability to meet those needs.
- Environmental = Systems representative of environmental health, Wicked Problems indicate major environmental damage.
- Living Standards = Systems representative of policy strength, Wicked Problems indicate poor policy support for society.

Cascade Table -

a table designed to show the relationships of all Systems in the Systems Map. Shows Direct Upstream, Direct Downstream, and Indirect Downstream Systems in relation to each other.

Character Class -

a unique profile that includes two Skills (card suits). Each Character Class is named after a real-world profession, but feel free to come up with your own job title!

Character Mat -

for each Character Class there is a mat intended to help visualise which sorts of problems that character is good at solving as well as aid with tracking Money \$ and Successes.

Character Token -

each Character Mat has a matching character portrait token provided. Use this token to mark which project you are working on when you attempt your first Skill Card check against that project.

Crisis Marker -

a marker indicating a System is in crisis. May be removed through a successful project targeting that system.

Crisis Track -

A part of the Systems Map, designed to help keep track of the number of Crisis Rolls that will be made at the end of each turn.

Game Variant -

an optional rules adjustment to make gameplay easier or harder, or otherwise modify play length or overall game experience

Money (\$) -

a resource, generated each turn by economic activity (usually 1 to 4, based on the Economic Category). Can be used to build technologies, or leveraged in other ways by location or character abilities.

Project -

a use of your Skills to solve a Problem. Skills Cards represent attempts to complete a given project, with the Player rolling at or below the number on the card to determine if the attempt was successful or not, as well as additional effects of an attempt.

Protection Marker -

a marker indicating a System is protected from stress, removed when that System is stressed instead of placing the System into Crisis. Place one of these markers on any system that has a project completed to remove a crisis, if the technology directly associated with protecting that System has been completed.

Scenario -

each gaming session is framed by a Scenario, which adds some narrative elements to the gameplay and creates new challenges on a given theme. Players may choose the Scenario for most sessions of play.

Skills -

The two suits of skill cards each given class may easily draw from (see Skill Cards)

Skill Cards -

types of work or insight, as represented by cards of different suits and leveraged to complete Projects, represented by standard playing cards:

- Clubs = Intellectual, representing knowledge-oriented work
- Diamonds = Creative, representing creative thinking processes
- Hearts = Caring, representing people-oriented work
- Spades = Applied, representing concrete goods and services or the management thereof

Stress/ Stressed -

when a system suffers Stress (or becomes stressed) any Protection Marker is removed, or if it was not protected place a Crisis Marker on the system. Stress occurs when a Crisis Roll of 8 or more occurs or if a system is downstream from a system in crisis that becomes stressed.

System -

each element of the Systems Map represents a social, economic, or environmental System, or a problem therein, arranged in a rough systems map that shows their relationships in the form of arrows indicating which Systems are most directly influenced by others. The "node" is the point on the system map for each System/Wicked Problem, connected to other nodes representing other Systems, with those arrows showing flows of influence. In relative terminology, a "downstream" node is one on the receiving end of another node's "outflow"; an "upstream" node is one from which a given node receives "inflow".

- E.g., Fossil Fuel Dependency has "outflows" to both Climate Change and Air Pollution (among others), making them "downstream" of it (i.e., burning fossil fuels directly leads to climate change and air pollution); an intensification of Fossil Fuel Dependency (through a Crisis Marker) could result in a Cascade that could put both Climate Change and Air Pollution into a state of Crisis, as they are the downstream recipients of its outflow on the System Map.
- Wicked 21st borrowed and adapted elements from Doughnut Economics to create our system map.

([https://en.wikipedia.org/wiki/Doughnut_\(economic_model\)](https://en.wikipedia.org/wiki/Doughnut_(economic_model)))

- Do you see other connections that aren't represented on our systems map? Draw your own! Mapping systems is a complex process that ideally includes many perspectives and a lot of data - because systems affect people differently, depending on who they are and on their physical and social location.

Systems Map -

the primary game board, including a map of all 30 systems together. This Systems Map tracks which systems are protected, neutral, or in crisis, as well as having a Turn Tracker, and Crisis Track.

Technology Board -

a game board designed to track technology progress as well as provide a rolling grid for randomising which system will be checked for a crisis.

Turn Tracker -

set to 1 at the start of the game and moved at the end of each turn until the end of turn 8.

Wicked Problem -

a problem with no clear definition, single cause or solution, interconnected with other problems of which the wicked problem is a symptom, and which are themselves the symptoms of other wicked problems
(https://en.wikipedia.org/wiki/Wicked_problem)

Appendix B: Important Concepts

Systems Thinking

Everything that exists is part of a system, and almost everything is *made* of systems. Ecosystems, family systems, transit systems, financial systems; but also things that we don't think of as systems, like a molecule, or a living creature, or a corporation or government department.

All systems have three components:

1. Elements - the things a system is composed of
2. Interconnections/Flows - the things that hold the Elements together
3. Function - what those things do together

All systems also behave in the same ways, which allows us to understand and, to some extent, predict their behaviour.

If we can see the Systems of the world, we can better adjust them or adjust to them. Wicked Problems are Systems Problems, which is why they are persistent, complex, and so destructive. For more information about Systems Thinking, check out the online course *Managing Complexity in the 21st Century!* [link]

Futures Thinking

The future is not set in stone, or far off; the things we do today directly impact our future. But human beings are not good at considering the future impacts of our actions, even when we're able to understand simple cause and effect or even complex Systems.

Futures Thinking includes both a skill set and a toolbox to help us think about the future, and doing so can help us to better understand the present as well as better preparing for the future. We barely touch on it in *Wicked 21st*, limiting our futures thinking to encourage players to plan ahead for the coming turns in a volatile environment; but Futurists in the real world are part of a

growing field used to help businesses and policymakers consider the long-term impacts of their actions, policies, or products, and to get ahead of trends.

Collaboration

Collaboration is so much more than just working together. It refers to a way of working together that includes being aligned in vision and purpose, sharing a stake in the outcome, and having free input into the process and thoughts behind the project.

The structure of a collaboration plays a big role in whether or not it is successful. In *Wicked 21st* we wanted to make you aware of the importance of collaboration: most actions in the game benefit from working together, and yet the ways that you can work together are constrained, especially by limiting your ability to interact with each other in two of the three phases of play. The idea is to set aside time for deliberate engagement between the players, and to prevent any player from taking over the game and telling the others what to do while they're actually acting. Players are equally invested in the outcomes of each turn, but need to trust the others to stick to the plan or to make good choices as they work independently. The Observer will be able to quickly determine if players are collaborating well, and offering that feedback might help players set some structures of their own to improve the collaboration.

Appendix C: [Cascade Table](#)

CATEGORY	CODE	NAME	CASCADE
INDUSTRIAL			
	UNS	Unsustainable Harvesting	CHE,INE,NIT,FRE,LAN, OCE, CLE, CLI, BIO, HEA, FOO, ENE, SOC, COM, AFF, LOW, FOS, ECO, SPR, LAB, UNR, POL, SYS, INF, DIS, MON, MAR, IND, AIR
	IND	Polluting Industry	INE,CHE,AIR, FRE, BIO, HEA, SOC, LOW, ENE, AFF, LAN, CLE, FOO, LAB, POL, SPR, COM, FOS, ECO, UNR, OCE, DIS, NIT, INF, SYS, CLI, MON, MAR, UNS
	FOS	Fossil Fuel Dependency	NIT,CHE,CLI,OCE, SOC, ENE, HEA, FOO, BIO, LAN, FRE, LOW, POL, COM, CLE, AFF, UNR, SPR, LAB, ECO, DIS, INE, SYS, INF, MON, IND, MAR, UNS, AIR
	SPR	Sprawl	LAN,INE,AFF, POL, SOC, BIO, UNR, COM, FOO, LOW, LAB, HEA, ECO, DIS, INF, SYS, MON, IND, MAR, CHE, UNS, AIR, NIT, OCE, FRE, CLE, CLI, ENE, FOS
ECONOMIC			
	INF	Inflation	ECO, AFF, SOC, SYS, MON, INE, COM, LOW, POL, UNR, SPR, LAB, LAN, IND, MAR, HEA, CHE, DIS, FOO, AIR, BIO, UNS, FRE, OCE, NIT, CLE, ENE, CLI, FOS
	MON	Monopoly	MAR,IND,INE,SYS,LAB, FOS, LOW, DIS, CHE, AIR, SOC, INF, UNR, ECO, POL, HEA, UNS, OCE, FRE, NIT, LAN, AFF, BIO, COM, ENE, FOO, CLE, SPR, CLI, FOS
	MAR	Market Externalities	MAR,IND,INE,SYS,LAB, FOS, LOW, DIS, CHE, AIR, SOC, INF, UNR, ECO, POL, HEA, UNS, OCE, FRE, NIT, LAN, AFF, BIO, COM, ENE, FOO, CLE, SPR, CLI, FOS
	INE	Inefficiency	
SOCIAL			
	SOC	Social Inequity	POL,UNR,COM,LOW, HEA, LAB, ECO, INF, AFF, DIS, SYS, MON, SPR, INE, MAR, LAN, IND, AIR, FOO, BIO, UNS, CHE, NIT, OCE, FRE, CLI, ENE, CLE, FOS
	LOW	Low Education	POL,ECO,LAB, UNR, LOW, POL, AFF, LAB, ECO, SPR, LAN, SYS, DIS, INE, INF, FOO, MON, BIO, MAR, IND, AIR, CHE, UNS, OCE, NIT, FRE, ENE, CLI, CLE, FOS
	POL	Lack of Political Voice	COM,SOC,LAB, AFF, SOC, COM, HEA, SYS, DIS, INF, INE, SPR, UNR, MON, LAN, MAR, IND, BIO, UNS, CHE, AIR, FOO, NIT, FRE, OCE, CLE, CLI, ENE, FOS
	UNR	Unrest & Injustice	COM,SOC, HEA, DIS, UNR, ECO, LOW, INF, AFF, SYS, MON, SPR, INE, MAR, LAN, IND, BIO, FOO, AIR, UNS, CHE, FRE, OCE, NIT, CLE, ENE, CLI, FOS
	COM	Lack of Community Networks	HEA,SOC, POL, LOW, HEA, AFF, ECO, LAB, SPR, INF, SYS, DIS, LAN, INE, MON, IND, MAR, BIO, FOO, UNS, AIR, CHE, OCE, FRE, NIT, CLE, CLI, ENE, FOS
CLASS			
	ENE	Energy Shortage	AFF,LOW, FOS, NIT, CHE, SOC, CLI, SPR, UNR, ECO, OCE, POL, LAB, COM, INE, SYS, DIS, LAN, BIO, INF, FOO, FRE, HEA, MON, CLE, MAR, IND, AIR, UNS
	HEA	Lack of Healthcare	SOC,AFF,LOW, SPR, LAB, UNR, POL, ECO, COM, INE, INF, LAN, DIS, SYS, FOO, BIO, MON, MAR, IND, AIR, UNS, CHE, FRE, NIT, OCE, CLI, ENE, CLE, FOS
	AFF	Lack of Affordable Housing	COM,SPR,SOC,POL,UNR, HEA, LOW, INE, LAB, LAN, FOO, ECO, BIO, DIS, SYS, INF, MON, MAR, IND, UNS, AIR, CHE, NIT, OCE, FRE, CLE, CLI, ENE, FOS
	CLE	Clean Water Shortage	HEA, AFF, LOW, SOC, POL, SPR, COM, UNR, LAB, ECO, LAN, DIS, INE, SYS, INF, FOO, BIO, MON, IND, MAR, UNS, AIR, CHE, FRE, NIT, OCE, CLI, ENE, FOS
	FOO	Food Shortage	COM,HEA,SOC, AFF, UNR, POL, LOW, ECO, SPR, LAB, INE, INF, DIS, SYS, LAN, MON, BIO, IND, MAR, UNS, CHE, AIR, NIT, OCE, FRE, CLE, ENE, CLI, FOS
ENVIRONMENTAL			
	BIO	Biodiversity Loss	LAN, FOO, COM, HEA, SOC, AFF, LOW, UNR, POL, ECO, SPR, LAB, DIS, INE, INF, SYS, MON, IND, MAR, AIR, CHE, UNS, NIT, OCE, FRE, ENE, CLI, CLE, FOS

	CHE	Chemical Pollution	FRE,HEA,BIO, SOC, AFF, LAN, CLE, FOO, ENE, LOW, ECO, LAB, UNR, POL, COM, SPR, FOS, CLI, NIT, INE, INF, DIS, SYS, OCE, MON, MAR, IND, UNS, AIR
	CLI	Climate Change	CLE, POL, LOW, COM, AFF, UNR, ECO, SPR, LAB, SYS, INE, INF, DIS, MON, MAR, IND, AIR, UNS, CHE, NIT
	FRE	Freshwater Depletion	CLE,FOO,ENE, COM, FOS, HEA, SOC, LOW, AFF, OCE, UNR, SPR, CLI, ECO, CHE, POL, NIT, LAB, SYS, INE, BIO, DIS, LAN, INF, MON, MAR, IND, AIR, UNS
	AIR	Air & Ozone Degradation	HEA, AFF, LOW, SOC, LAB, SPR, UNR, COM, POL, ECO, DIS, INE, SYS, LAN, INF, MON, FOO, BIO, IND, MAR, UNS, CHE, OCE, NIT, FRE, ENE, CLI, CLE, FOS
	OCE	Ocean Degradation	FOO, BIO, FRE, COM, SOC, LAN, HEA, ENE, UNR, LOW, AFF, POL, FOS, CLE, SPR, NIT, CHE, LAB, ECO, SYS, DIS, INE, INF, MON, MAR, IND, UNS, AIR
	LAN	Land Conversion	FOO,BIO, COM, SOC, HEA, UNR, POL, AFF, LOW, SPR, ECO, LAB, SYS, INF, DIS, INE, MON, IND, MAR, UNS, AIR, CHE, OCE, NIT, FRE, ENE, CLE, CLI, FOS
	NIT	Nitrogen & Phosphorus Loading	FOO,BIO,OCE, SOC, COM, LAN, HEA, CLI, UNR, ENE, FRE, LOW, POL, AFF, ECO, LAB, SPR, CLE, FOS, INF, DIS, INE, SYS, CHE, MON, MAR, IND, AIR, UNS
LIVING STANDARDS			
	ECO	Economic Inequality	INF,AFF,SOC,SYS, COM, LOW, MON, UNR, SPR, INE, POL, LAN, IND, LAB, MAR, HEA, UNS, BIO, AIR, DIS, FOO, CHE, FRE, OCE, NIT, CLI, CLE, ENE, FOS
	DIS	Discrimination	ECO, SOC, IND, LOW, MAR, AFF, COM, LAB, POL, CHE, AIR, UNS, SPR, DIS, HEA, OCE, FRE, NIT, LAN, BIO, CLE, FOO, ENE, CLI, FOS
	LAB	Low Labour Standards	ECO,HEA,DIS,POL,LOW, POL, INF, SYS, AFF, LOW, COM, UNR, MON, SPR, INE, LAB, HEA, MAR, IND, LAN, FOO, BIO, CHE, AIR, UNS, FRE, NIT, OCE, CLE, ENE, CLI, FOS
	SYS	Systemic Corruption	ECO,INE,MON,SOC,INF,UNR, SOC, INF, AFF, COM, SYS, SPR, UNR, INE, MON, LAN, IND, MAR, UNS, AIR, FOO, BIO, CHE, OCE, NIT, FRE, CLE, ENE, CLI, FOS



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