

THE GAME DEVELOPER'S GUIDE TO SUSTAINABLE FUTURES



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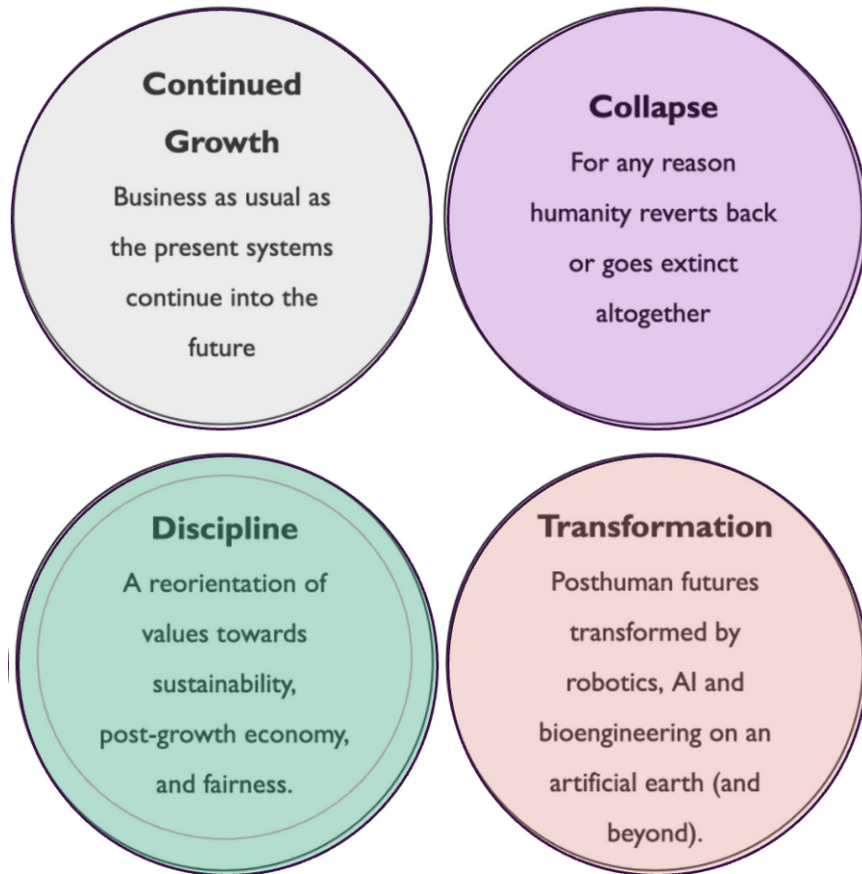
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INTRODUCTION:

THE FUTURE IS NOT PREDETERMINED



Value-shift / value reorientation Futures

There are many alternative paths we, as humans, can take into the future, which can generally be divided into four generic categories¹.

Continued growth: economic growth continues with no limits.

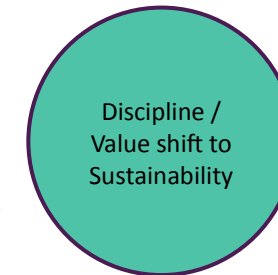
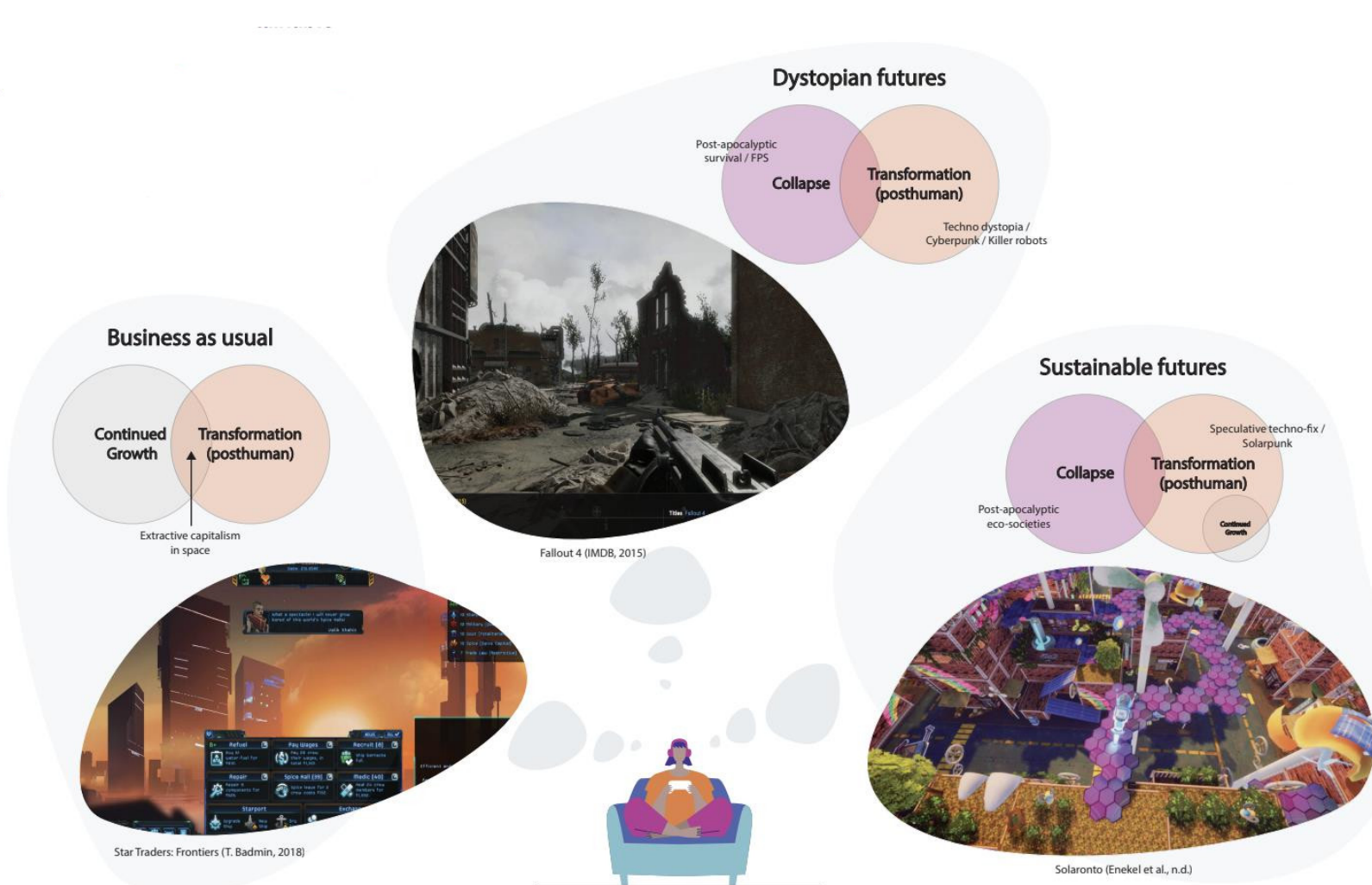
Collapse, regardless of causation: from social, economic, or environmental causes, and even fantastical scenarios such as asteroid impact or alien invasion.

Values-shift to sustainability: also known as 'disciplined society', is a contrast to continued growth. A reorientation towards sustainability, a post-growth economy, and fairness.

Techno-optimistic transformation / post-human: bioengineering, robotics, general artificial intelligence, space settlement... this future imaginary welcomes this transformation of life itself on (an artificial) earth and beyond

FUTURES IN VIDEO GAMES

TEND TOWARD HEGEMONIC NARRATIVES



Games imagine new futures—through every discipline, games present an imagined version of reality.

Yet futures in video games tend towards hegemonic narratives of continued growth, collapse and techno-optimistic transformation – only three of the four possible alternative futures.

Leaving value shift futures (re-orientation) largely unrepresented.

Games from left to right: [Star Traders: Frontiers](#), [Fallout 4](#), [Solaronto](#)

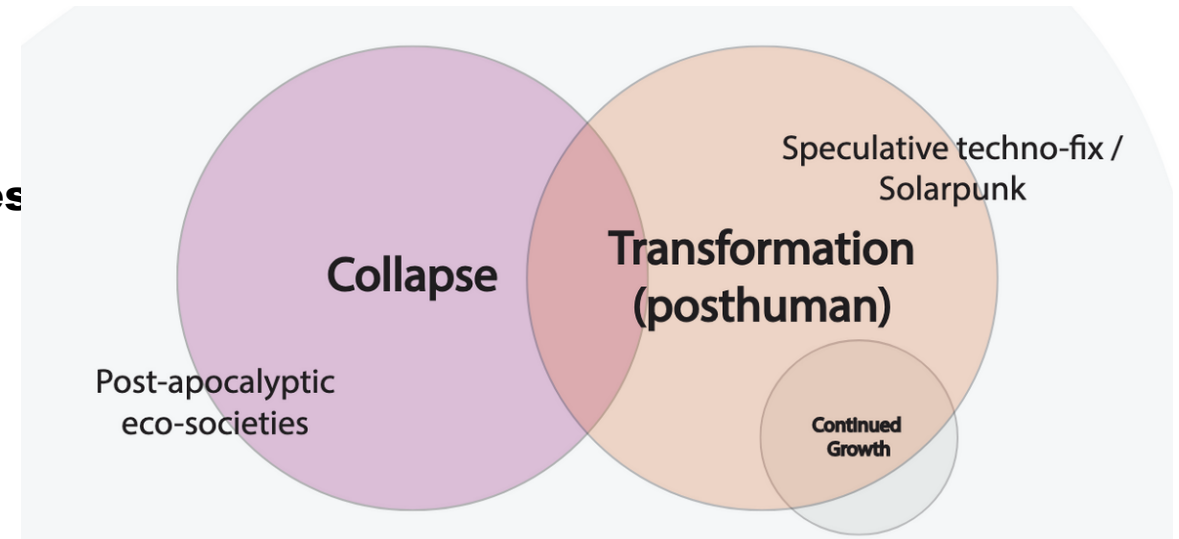
IMAGINATION MATTERS

The good news is that sustainable futures exist in games, and many game developers are interested in imagining a better world.

This is great, because a growing body of research shows that **being able to imagine transformational, sustainable futures increases engagement with collective environmental action**, making it an important piece in motivating socio-ecological transformation²⁻⁴.

However, most sustainable futures in games are either post-apocalyptic, techno-optimistic, or both.

Sustainable futures in games could be so much richer, more exciting, more engaging, more inspiring, and more useful. This guide will show you how.





HOW TO USE THIS GUIDE

Learn, practice, and go make a game*

- We focus on four domains of the future: Politics and the Importance of Democracy; Nature-People Values and Relationships; Economy on a Finite Planet; and The Role of Technology.
- For each domain, we provide essential knowledge, ♦ best practices ♦ for representation of sustainable futures examples and [relevant links](#) for further reading.
- Each domain includes a checklist of [pitfalls to avoid](#).

THE FOUR DOMAINS



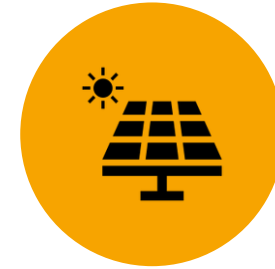
**POLITICS AND THE
IMPORTANCE OF
DEMOCRACY**



**NATURE-PEOPLE
VALUES AND
RELATIONSHIPS**



**ECONOMY ON A FINITE
PLANET**



**THE ROLE OF
TECHNOLOGY**

**POLITICS
AND
THE IMPORTANCE
OF DEMOCRACY**



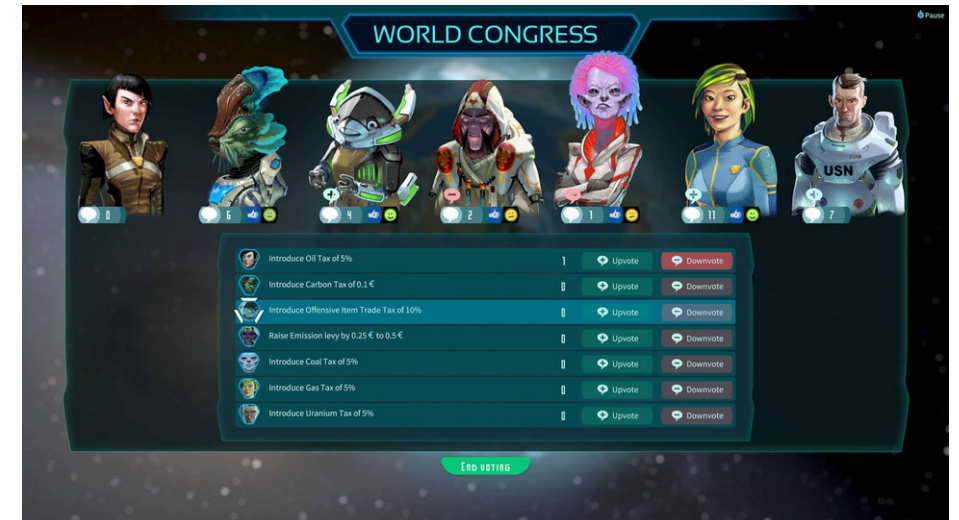
POLITICS AND THE IMPORTANCE OF DEMOCRACY



Research of past societies shows that **the more democratic and equitable a society is, the more resilient it is to collapse**⁵⁻⁷.

Sustainability requires strong institutions, which are powered by people - **civic participation is just as important (or more) than individual actions.**

Images of collapse can make it seem inevitable, leading to inaction due to doomism⁸⁻¹⁰. A transformative approach¹¹ is about an intentional picking and choosing of what to keep and grow and what to let go of.



[Imagine Earth](#) includes a representative 'world congress' that is used to impose environmental regulations on polluting corporations.

POLITICS AND THE IMPORTANCE OF DEMOCRACY



◆ Best Practices ◆

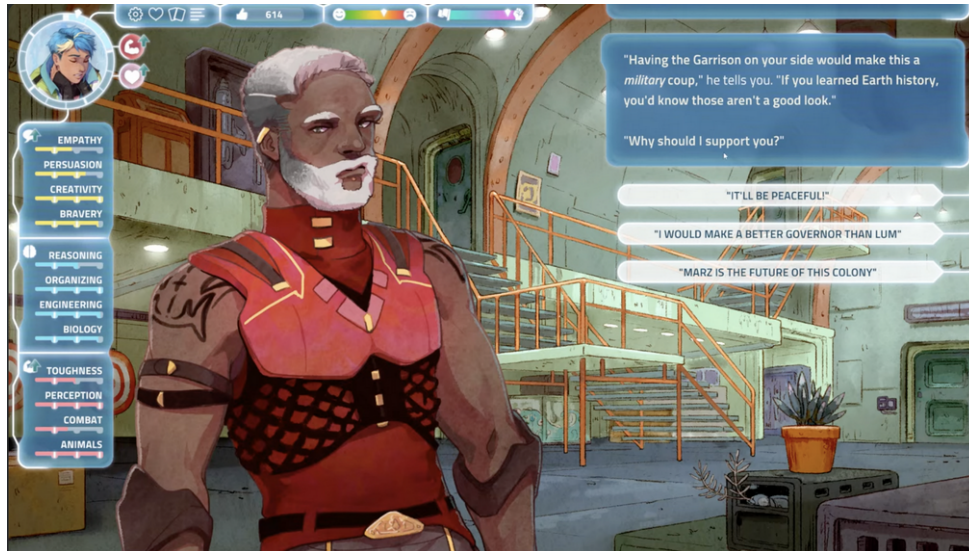
We don't need to see eye to eye on everything in order to build sustainable communities. *Consider modelling productive conflict in your game world.*

Democracy is more than just regular elections. From free and independent press to [confronting state capture](#), there are many measures that determine how democratic a system is. *Think about how you can represent more facets of democracy in your game world.*

Participatory democracy strategies can include [Citizen assemblies](#), consensus building, and [future generations proxies](#). *These could inform how people engage in civic discussion in your game world.*



POLITICS AND THE IMPORTANCE OF DEMOCRACY



In [I was a Teenage Exocolonist](#) you can campaign for a teenager (you or your friend) elected to lead the colony.

Avoid these pitfalls:

- ❑ Framing sustainability as individual responsibility.
- ❑ Eco-societies that are akin to cults and rely on strong leaders.
Boring, utopian futures with no problems.
- ❑ Ableist survival models, built around individual physical fitness
Narratives of us vs them.
- ❑ Heroes are always hot young people.
- ❑ Future stakeholders are underrepresented in decision-making.
- ❑ Using post-apocalyptic setting to 'disappear' a large portion of human population.
- ❑ Using post-apocalyptic settings to disappear all rules, regulations and social safety nets.

NATURE-PEOPLE VALUES AND RELATIONSHIPS



NATURE-PEOPLE VALUES AND RELATIONSHIPS



Human society is interwound with and dependent on nature. Forests produce breathable air, watersheds filter pollutants out of water, and biodiverse soil grows our food.

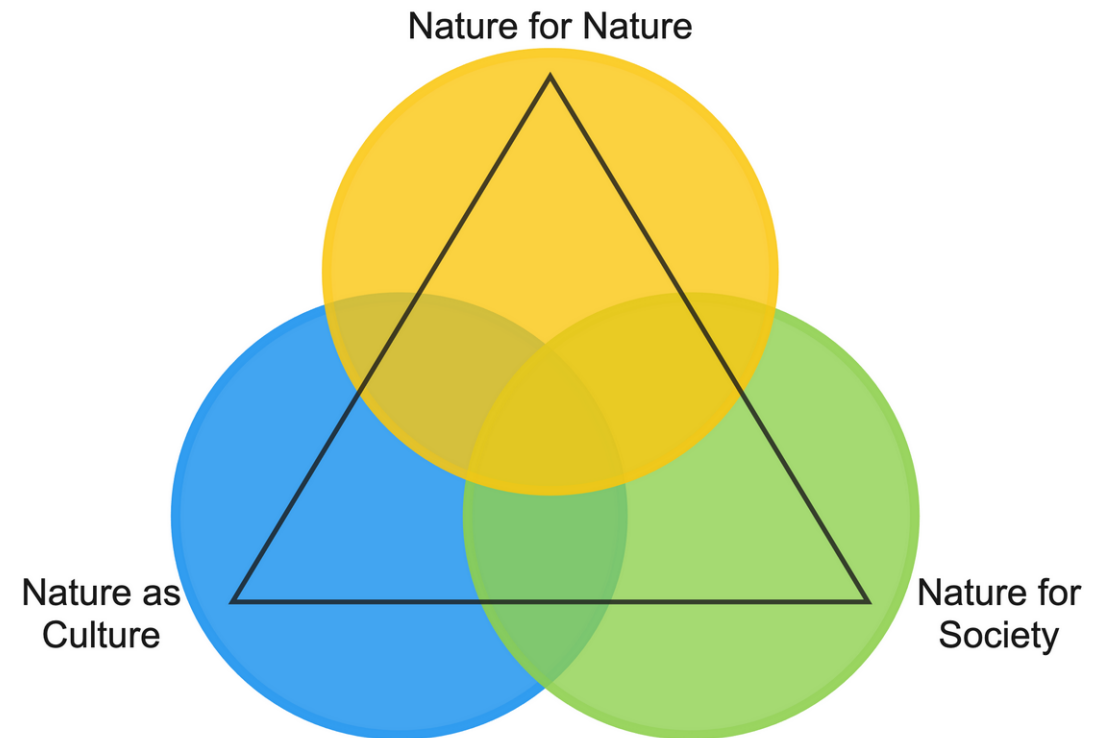
[The Nature Futures Framework](#) is a great way to think about the many possible relationships between nature and society.

In this framework, a desirable nature-people future is situated anywhere within the triangular space created by three core nature-people value propositions:

Nature for Nature (e.g. [rewilding](#), conservation)

Nature for Society (e.g. sustainable resource management)

Nature as Culture (e.g. traditional and indigenous knowledge, [Buen Vivir](#))



Based on the Nature Futures Framework¹²

miro

NATURE-PEOPLE VALUES AND RELATIONSHIPS



◆ Best Practices ◆

Nature is not infinite but can regenerate over time. Harvesting of natural resources must not exceed the rate at which resources can regenerate. *You may be able to reinforce the idea that there are limits to production and consumption through your game resources.*

Connections between people and nature support an **ecocentric worldview**: viewing nature as having intrinsic value rather than just being a resource.

Laws around 'rights of nature' where important ecosystems or species are granted legal personhood are one approach to that is growing in popularity.



In Apico growing and collecting bees is balanced by restoring and releasing threatened species into the ecosystem.

NATURE-PEOPLE VALUES AND RELATIONSHIPS



We are already experiencing the impacts of climate change, and even in the best-case scenario, this will still get worse.

[Nature-based Solutions](#) can be more locally relevant and effective than [engineering solutions](#), especially for climate adaptation.

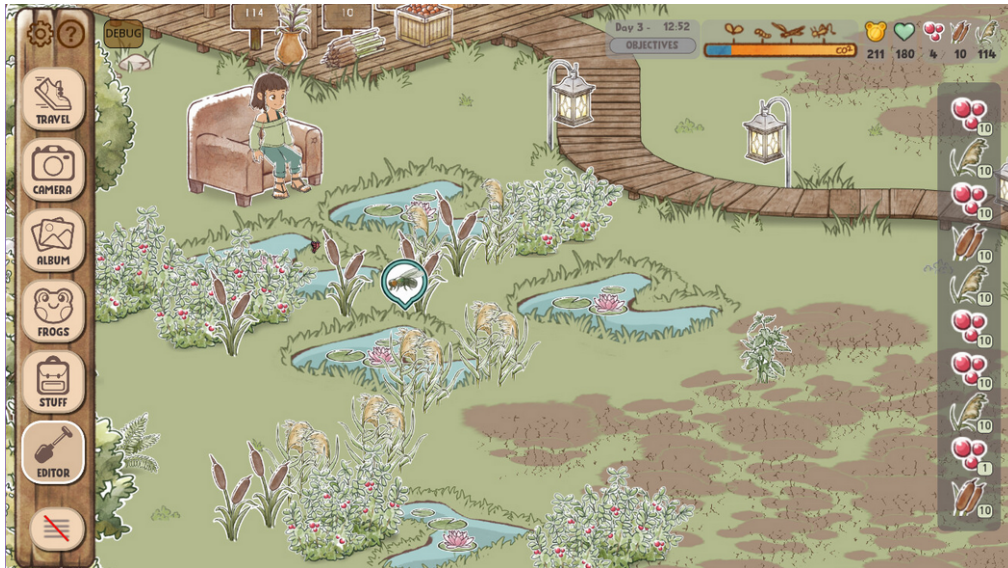
Development projects can incorporate regeneration and traditional ecological knowledge.

A striking example is the use of traditional half-moons earthworks to create the [Sahel's Great Green Wall](#).



[Demi-lune](#) is a short puzzle game inspired by Great Green Wall initiative.

NATURE-PEOPLE VALUES AND RELATIONSHIPS



[Kamaeru](#) highlights the reciprocity between people and nature (nature as culture), regenerating and protecting wetlands in the game also strengthens local communities and livelihoods.

Avoid these pitfalls:

- ☐ Nature as resource that is boundless or infinite.
- ☐ Sustainability as 'better' resource management rather than reciprocity with nature.
- ☐ Humans are separated from nature rather than a part of it. (e.g. terra nil).
- ☐ Nature as a fundamentally hostile force (a general issue with a combat/violence-based game with enemies drawn from nature (e.g. Elden Ring).
- ☐ Too much emphasis on collapse can make it seem inevitable.
- ☐ Not incorporating Traditional Ecological Knowledge (TEK).
- ☐ Post collapse narratives with few visions of sustainable cities.

ECONOMY ON A FINITE PLANET



ECONOMY ON A FINITE PLANET



Growth in the consumption of natural resources should not be considered economic "progress."
Instead, economic systems can incentivise doing more with what we have ("development" instead of "growth").

Our current metric of economic progress, gross domestic product (GDP), often measures the benefits of resource consumption without considering the costs.

These costs are called externalities, as they are external to what is measured by the free market economy.



Before We Leave approach to industrialisation sees players having to account and manage environmental impact and human wellbeing to succeed.

ECONOMY ON A FINITE PLANET



Inequality and extreme wealth have a compromising and corrupting impact on democracy and increase the risk of societal collapse.

The UN-backed [Roadmap for eradicating poverty beyond growth](#) includes a large set of policies that aim to reduce inequality while reorienting 'Public spending for social and ecological priorities'.

These can be achieved by caps and taxes on corporations and the wealthiest individuals, shifting financial responsibility for mitigation and adaptation to polluters (tax on environmental harm), or using more targeted laws, such as a luxury tax, which the [Living Well Within Limits](#) project highlights as beneficial for achieving environmental, social, and wellbeing outcomes.

ECONOMY ON A FINITE PLANET



◆ Best Practices ◆

Alternative models to GDP growth include the [Doughnut Economy](#), [Wellbeing Economy](#), and [Degrowth](#).

Each of these uses a more sustainable metric for economic progress that could be part of your game economy.

When it comes to organized work, examples can come from cooperatives, shorter work weeks, and strong unions. *Think about what work-life means to your characters?*



[KO_OP](#) is an example of a worker run co-op game studio, which means that everyone working there has equal pay and equal say.

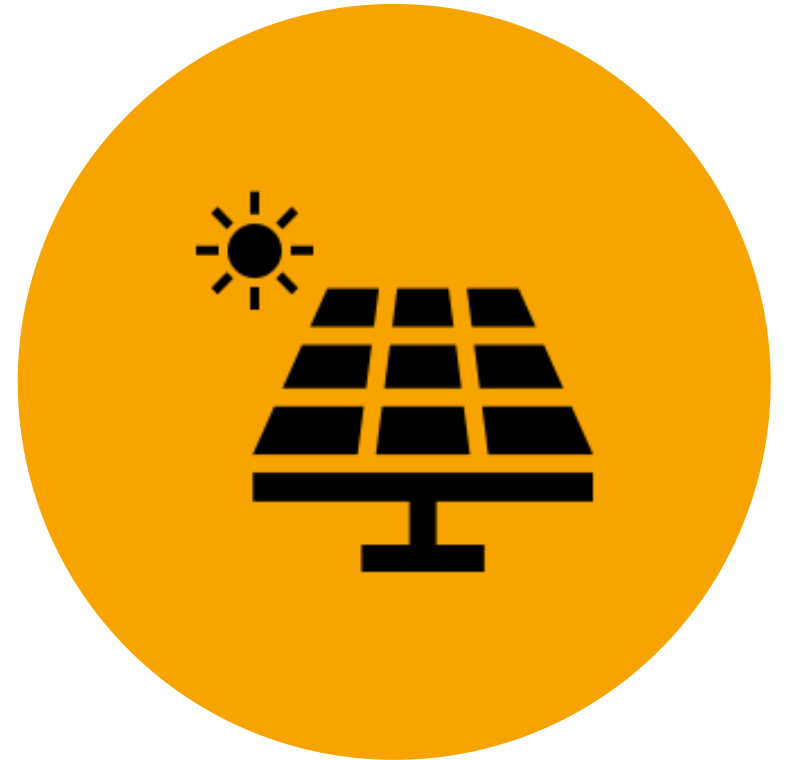
ECONOMY ON A FINITE PLANET



Avoid these pitfalls:

- ❑ Visualising either collapsed or capitalist economic systems rather than new, more sustainable systems.
- ❑ Emphasising individual benevolence over systems that result in favourable outcomes for everyone.
- ❑ Emphasising consumerism as the (only) pathway to successful relationship-building (such as giving expensive gifts).
- ❑ Hiding the true costs of production. Most games show purchase price but exclude:
 - Environmental extraction costs.
 - Worker labour conditions.
 - Displacement of communities.
 - Depletion of resources available to future generations.
- ❑ 'Everything is new' as in creating a world dominated by new 'green' buildings, without accounting for the costs, embedded energy in materials and the waste produced by wholesale removal and replacement of entire built environments.

THE ROLE OF TECHNOLOGY



THE ROLE OF TECHNOLOGY



Techno-optimism is the belief that some future innovation will somehow fix the damage we are inflicting on the planet (or ship the rich away¹³).

This belief is amplified by oil companies and corporate lobbies as a reason not to change their ways and as a distraction that delays and stifles regulations, mitigation, and adaptation efforts^{14,15}

Research shows that techno-optimistic beliefs lead people to be **less supportive of climate policies** and **less likely to participate in pro-environmental collective action** or make environmental lifestyle choices¹⁶⁻¹⁸.

Similarly, research on utopian visions found that engaging with a green vision of the future increased social change motivation, whereas engaging with a techno-optimist 'Sci-Fi utopia' future had no effect on motivation, action, or striving¹⁹.

THE ROLE OF TECHNOLOGY



Technology has an important role in a sustainable future, and luckily, we already have available solutions - we need to rapidly deploy our existing renewable energy technologies. But even if we do, we will not be able to meet the level of current wasteful energy demands, nor change the extractive structures that fuel our ecological crisis.

Another issue is that technologies that are supposedly environmental are speculative and risky²⁰.

For example, [carbon capture](#) doesn't scale, and even where it is currently deployed, it is actually used to extract even more fossil fuels. [It is essentially a scam](#).

[Geoengineering](#) is another incredibly risky process that has unknown consequences that could be devastating. And while concepts like sun dimming might reduce temperatures, they do not solve co-occurring problems such as ocean acidification and biodiversity collapse.

It is much safer to mitigate: to stop doing the harmful actions of emitting greenhouse gases, cutting down forests and polluting our land and waters, than to hope that we don't have to change our ways because some future technology can somehow reverse all this damage.

Because techno-optimism is common in game futures, our toolkit focuses on systems, worldviews and economic change.

THE ROLE OF TECHNOLOGY

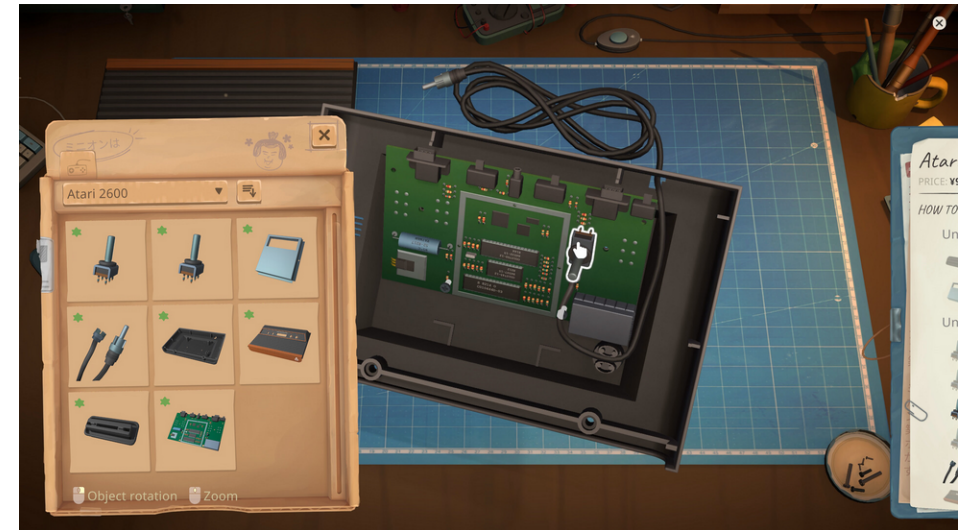


Technology is useful for adaptation, but its benefits can be offset by behaviour change. For example, in the U.S., damage from flooding increased after dams were built because more housing was built in places that were previously floodplains.

Technology companies often prioritise hype over actual benefits to society, while at the same time covering up true hidden costs: the fossil fuel and water use of generative AI, or how social media algorithms have supported echo chambers and political extremism.

Renewable energy still requires resource use and has environmental costs and limits.

Corporations are collecting our data to drive consumerism and concentrate money and power in the hands of a few powerful CEOs.



ReStory provides "In-depth device cleaning and restoration system"

THE ROLE OF TECHNOLOGY



◆ Best Practices ◆

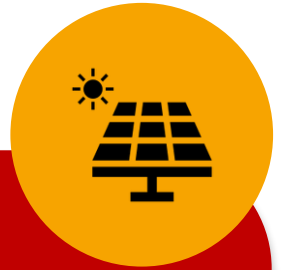
Technology that works for people is [repairable](#), upgradeable, transferable and recyclable to reduce e-waste.

Decentralised solutions such as [microgrids](#) help democratise power production. *How might local energy sovereignty show up in your game world?*

Technology can make lives better and safer without being high-tech. Check out the [Appropedia](#) for lots of examples. *Maybe think about incorporating real, simple solutions instead of 'magic' future tech.*



THE ROLE OF TECHNOLOGY



Future? No Thanks! Includes an AI model that is limited to analysing and recommending economic models (suggesting the better functionality for machine learning is 'narrow' AI instead of attempting general AI)

Avoid these pitfalls

- ❑ Dystopian narratives / post-apocalyptic settings.
- ❑ Technology as a 'silver bullet' solution; 'magic' techno-fix, such as geoengineering.
- ❑ Techno-optimistic "power generation" (infinite power with no cost/downsides).
- ❑ Only emphasising technology that increases comfort/quality of life (instead of broader technologies that take into consideration more than just its users).
- ❑ Being radical on the edge (no tech or high tech)
- ❑ Conflating sustainability with regression (often via rustic or old-timey aesthetics) **and** assuming a single technological path defines 'progression'.
- ❑ AI overlord: Instead of learning to live in harmony with nature, humans surrender all agency to an AI that is 'ecologically' programmed.
- ❑ Using 'solutions' that look good but actually aren't (for examples, see Project Drawdown on why vertical farms are 'not recommended' while agroforestry is 'highly recommended').
- ❑ Conflating science and technology. Our understanding of fields such as ecology, soil science, and climatology can conflict with certain technological pursuits. Trust in science is, therefore, sometimes in opposition to the interests of tech companies.

GAMES AS PART OF A MOVEMENT

A Game is not going to change the world on its own, but it can be connected to environmental social movements.

Identification with environmental activists is a highly effective way to get people motivated to participate in collective action, even more than identification with nature itself ²².

Whether your game is focused on sustainable transformation or this is part of the backstory, consider how you can feature environmental activists in a way players can connect with.

Include a call for action: your game can point players to real-world movements they can join to participate in environmental collective action.



All Will Rise is a game set in future Kerala that features activists working in their local community to build a court case against a corrupt billionaire who 'killed the river'. The game was inspired by and still has close ties to real action groups.



TIMELINES

- Consider the backstory - how did this future become possible? What makes it viable?
- How did this society transform to avert collapse? What had to change?
- How are relics from the past repurposed, retrofitted or alternatively preserved?
- Think about the ideas you gathered so far. For each one, imagine what the consequences could be, then what the consequences of that would be.

You could map these on a [Futures Wheel](#).

- If your game has characters, how do these large-scale changes ripple into their day-to-day life, in small ways? In big ways? In unexpected ways?
- If you didn't use words to explain this future, how does the player know things are different in this world?

ADDRESSING CONFLICT

A sustainable future world does not mean there cannot be drama!

Fernández-Vara & Weise²¹ introduce a methodology to help game developers identify the kinds of stories that can unfold in their worlds and drive new game mechanics. For this purpose, they explore the different ways to approach conflict:

Sociocultural/ Economic conflicts - a conflict between groups with competing goals and ideas. For example, a desirable future can include a scenario exploring progressive versus conservative groups, two tendencies that exist in every society.

Environmental conflict - as a certain level of climate change is already locked in, any future scenario will still include environmental disasters and a need to adapt and respond to them, which can inform narratives and gameplay.

Informational conflict - In this type of conflict, the player seeks unknown knowledge or is piecing something together. A desirable future world can still be full of mysteries!

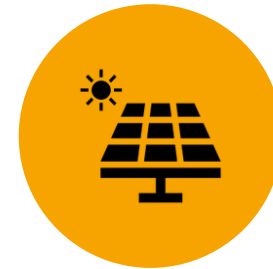
Interpersonal conflict - relationships are a great source of drama... in any future and in any world, these conflicts (between lovers, families, colleagues) will continue to arise.

Internal or personal conflicts - Internal conflicts are common in rites-of-passage journeys, where a protagonist's main issue arises from within their own mind or emotions; this more intimate view could explore topics such as moral dilemmas, mental health, etc.

FINAL WORDS

By now, you have read a whole lot about sustainable futures and hopefully started forming some ideas on how these domains can be expressed in your game.

This is a good time to go back and check your project against the pitfalls!



If you are looking for more inspiration, the next slide has links to further resources.

We are looking forward to playing your game!



MORE RESOURCES

[Join the IGDA Climate SIG](#) and check out our other resources!

[Learn about reducing your game's carbon footprint](#) from the Sustainable Games Alliance.

[Imagine adaptation](#) has an illustrated deck of climate adaptation futures in cities.

Plan for accessibility - <https://gameaccessibilityguidelines.com/>

[Read the full Degrowth proposal.](#)

Climaginaires has created a fun fictional travel guide to [a post-fossil fuel Notterdam](#)

Validate your climate solutions on [Project Drawdown Expolrer](#).



REFERENCES

1. Dator J. Alternative Futures at the Manoa School. *Journal of Futures Studies*. 2009;14(2):1-18.
2. Wright JD, Schmitt MT, Mackay CML. Access to Environmental Cognitive Alternatives Predicts Pro-Environmental Activist Behavior 2022;54(3):712-742. doi:10.1177/00139165211065008
3. Lutz AE, Schmitt MT, Mackay C, Wright JD. Experimentally Elevating Environmental Cognitive Alternatives: Effects on Activist Identification, Willingness to Act, and Opposition to New Fossil Fuel Projects 2024. doi:10.31219/osf.io/7xey2
4. Bosone L, Rasse T, Ionescu O, Chevrier M, Collange J. Visions of Tomorrow: Emotional drivers of climate change mitigation and adaptation intentions. 2025;106:102700. doi:10.1016/j.jenvp.2025.102700
5. Gupta J, Bai X, Liverman DM, et al. A just world on a safe planet: a Lancet Planetary Health-Earth Commission report on Earth-system boundaries, translations, and transformations. 2024;0(0). doi:10.1016/S2542-5196(24)00042-1
6. Kemp L. GOLIATH'S CURSE: The History and Future of Societal Collapse. PENGUIN BOOKS; 2026.
7. Hoyer D, Bennett JS, Reddish J, et al. Navigating polycrisis: long-run socio-cultural factors shape response to changing climate. 2023. doi:https://doi.org/10.1098/rstb.2022.0402
8. Bosone L, Rees J, Feraco T, et al. Acting together for a positive future: A cross-cultural investigation of how environmental cognitive alternatives and efficacy beliefs contribute to individual and collective biodiversity-conservation intentions. *Futures*. 2026;175:103720. doi:10.1016/j.futures.2025.103720
9. Neuhoﬀ R, Simeone L, Holst Laursen L. The potential of design-driven futuring to support strategising for sustainable futures. 2022;25(6):955-975. doi:10.1080/14606925.2022.2121057
10. Stuart D. "I have no future" - the critical need to counter climate doomism. 2025;0(0):1-12. doi:10.1080/23251042.2025.2552388
11. Moore ML, Milkoreit M. Imagination and transformations to sustainable and just futures. 2020;8(1):081. doi:10.1525/elementa.2020.081



REFERENCES

12. Pereira LM, Davies KK, Den Belder E, et al. Developing multiscale and integrative nature-people scenarios using the Nature Futures Framework. 2020;2(4):1172-1195. doi:10.1002/pan3.10146
13. Tutton R. Sociotechnical Imaginaries and Techno-Optimism: Examining Outer Space Utopias of Silicon Valley. *Sci Cult*. 2021;30(3):416-439. doi:10.1080/09505431.2020.1841151
14. Supran G, Oreskes N. Rhetoric and frame analysis of ExxonMobil's climate change communications. 2021;4(5):696-719. doi:10.1016/j.oneear.2021.04.014
15. Celermajer D, Cardoso M, Gowers J, et al. Climate imaginaries as praxis. 2024;7(3):1015-1033. doi:10.1177/25148486241230186
16. Dablander F, Cologna V, Sachisthal M, Haslbeck JMB. Techno-optimistic scientists take fewer climate actions. 2025:c3skb_v1. doi:10.31234/osf.io/c3skb_v1
17. Campbell-Arvai V, Hart PS, Raimi KT, Wolske KS. The influence of learning about carbon dioxide removal (CDR) on support for mitigation policies. 2017;143(3):321-336. doi:10.1007/s10584-017-2005-1
18. Soland M. "Relax... Greentech Will Solve the Problem!": Socio-Psychological Models of Environmental Responsibility Denial Due to Greentech Optimism.. https://www.zora.uzh.ch/id/eprint/84597/1/Thesis_Soland2013.pdf
19. Fernando JW, O'Brien LV, Burden NJ, Judge M, Kashima Y. Greens or space invaders: Prominent utopian themes and effects on social change motivation. 2020;50(2):278-291. doi:10.1002/ejsp.2607
20. Li M, Keyßer L, Kikstra JS, et al. Integrated assessment modelling of degrowth scenarios for Australia. 2023. doi:https://doi.org/10.1080/09535314.2023.2245544
21. Fernández-Vara C, Weise M. Making Worlds Into Games – a Methodology. In: *World-Builders on World-Building*. Routledge; 2020.
22. Schmitt, M. T., Mackay, C. M. L., Droogendyk, L. M., & Payne, D. (2019). What predicts environmental activism? The roles of identification with nature and politicized environmental identity. <https://doi.org/10.1016/j.jenvp.2018.11.003>