Green Games Guide

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What's inside

Making games better

We are publishers, designers, manufacturers, and players. Card and board games are the center of our professional lives and our personal passion.

We love games. And we want to make them even better. For the whole damn planet.

Let's state the obvious: the climate and environmental crisis is an urgent planetary threat - the greatest challenge in human history. A problem this immense requires all of us, working in every possible sector, to radically change the way we think about our work and daily life. Right now.

From the materials that make up a game to box size and packaging, there are far too many ways that our industry contributes to environmental destruction and wasteful consumerism. The *Green Games Guide* is our attempt to harness the skills, creativity and passion in the tabletop industry so that we can move from being part of the problem to being part of the solution. It contains concrete actionable steps that all of us can take - manufacturers, publishers, retailers, designers, players, and everyone else in the world of tabletop games.

The suggestions in the *Green Games Guide* are based on science and best current practices in environmentally responsible product design. In the pages that follow, you will find practical recommendations for designing, manufacturing, and distributing games more sustainably. You will also find case studies of games that have implemented many of these recommendations.

There is so much more to do. But this is a good place to start. Sustainability begins by understanding the harm we are causing, so we can take action and do better. And that's why we made the *Green Games Guide*. We see it as part of a larger movement in games - a movement that recognizes the severity of the environmental crisis – and takes real steps to make the games we all love even better. We'd love to have you on board.

The Green Games Guide Board

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Guiding principles

Climate positive

Minimize or eliminate carbon emissions.

> Rising greenhouse gasses present an existential planetary threat to nature and humanity.

> Tackling this crisis means radically reducing greenhouse gas emissions from all human activities, and eliminating them completely by 2050 (or ideally, much earlier).

> This guide has science-based recommendations to reduce emissions from the design, manufacturing, and transport of tabletop games.

Circular economy

Reduce, reuse and recycle materials to minimize use of natural resources.

> The climate is not the only environmental crisis: a linear economy of waste is driving unprecedented pollution, biodiversity loss, ecological devastation, and loss of habitats.

> Every year, millions of tabletop games use natural resources: freshly cut trees for paper and wood, fossil fuels for plastic components and packaging - too much of which ends up in landfills within a few years.

> To help end this wasteful cycle, this guide has recommendations to help games reduce the use of natural resources, using the circular economy principles of reducing, reusing, and recycling materials.

Social sustainability

Recognition of workers' rights and local cultures.

> To fully address the planet's challenges requires more than new approaches to materials: environmental sustainability is often tightly linked to social sustainability.

> Some of the recommended standards in this document go to great lengths to address issues of workers' rights and respect for local and indigenous cultures. This is particularly true when it comes to the forestry industry behind the paper, cardboard and wood that make up most of our games, which uses vast amounts of land and reaches local communities worldwide.

> As players and professionals, there are things we can do to shift the culture of the game industry, raise awareness, and change the way we think about how games are made.

Overview

How we make games more sustainable

A typical game today
> is produced without sustainability in mind
> generates large carbon emissions
> often has components unlikely to be recycled

Step 1: Use less
> reduce amount of components needed to play
> reduce materials and waste from production

Step 2: Choose better materials
> select materials with low carbon footprint
> use materials likely to be recycled/composted

Step 3: Package mindfully
> minimize the size of game boxes
> avoid wasteful packaging materials

Step 4: Use renewables & nature-based removals
> use renewable energy
> offset remaining emissions with carbon removals like direct air capture

At every step: Change the culture
> support publishers and manufacturers that keep sustainability in mind
> shift what “good design” really means
> spread the word about the need for change

Wood, paper and cardstock

Cards. Tiles. Boards. Rules. Character sheets. Little cardboard tokens. Miniature wooden meeples. **Tabletop games use a heck of a lot of wood, paper and cardstock.** Not knowing where the pulp in your game comes from means you may be supporting mass deforestation, climate change, illegal logging, worker exploitation, and endangering plant and animal species. The good news is that there are excellent options for sustainably sourcing wood, paper and cardstock in games.

GGG best practices > wood, paper and cardstock

Best

100% recycled FSC-certified
(or other verifiable sources)

Climate positive
> no tree cutting required, no environmental degradation
Circular
> made solely from materials that had a previous life, with no tree cutting needed

Even Better

FSC Mix-certified wood, paper and cardstock

Climate positive
> these products combine recycled with sustainably-sourced materials
Circular
> use of some recycled content means less trees cut

Better

FSC-certified new materials

Climate positive
> the gold standard of sustainable forestry certification

PEFC-certified new materials

Climate positive
> a sustainable forestry certification standard

Good

Recycled wood, paper, and cardstock - even if they aren't certified

Circular
> use of recycled content means less trees need to be cut

Current

Non-certified wood, paper and cardstock

Many potential negative effects
including deforestation, ecological degradation, worker exploitation

The fine print

Reduce, reduce, reduce

> Reduce the amount of materials you use in your game components and packaging. For what you do include, today most manufacturers do offer sustainable options - so you need to be sure and ask for them!

Use 100% recycled - whenever you can

> Wood, paper and cardboard made from 100% certified recycled paper is available under the FSC framework. This avoids all the problems of tree cutting - which makes it the GGG **best** practice. At the same time, we also recognize that recycled materials do not always fit every possible publishing need.

Certification makes a real difference

> Sustainable forest certifications encourage the protection and restoration of natural forests, prevent deforestation and land degradation, protect native biodiversity, and reduce greenhouse gas emissions. They typically also ensure fair labor practices and respect for indigenous rights. FSC is the most rigorous and robust sustainable forestry certification scheme available globally. PEFC certification is also recommended if FSC certification is not available.

Consider what goes on top

> Often wood-based materials are covered with polymer coatings (such as laminating cards or painting wooden tokens with acrylic). These can essentially add a layer of plastic to paper or cardboard, making the entire game unrecyclable.. Instead, select a finish that is compostable, such as a water-based veneer.

> Many manufacturers now offer soy-based inks for printing cards, paper, boxes, and other pulp materials. These inks are generally much less harmful to the environment, both during the manufacturing process as well as the post-consumer part of a game's life cycle.

What exactly does FSC mean?

> The FSC (Forest Stewardship Council) certification system verifies sustainable sourcing of forest products and ecosystem services at every step of the value chain, from forest to consumer. Every FSC label is backed by a diverse ecosystem of forest managers, businesses, nonprofit organizations, and others committed to upholding a common set of responsible forestry standards that support:

- zero deforestation
- safeguarding ancient & endangered forests
- fair wage and work environment
- biodiversity preservation
- community rights, including the rights of Indigenous Peoples

What about PEFC?

> PEFC (Program for the Endorsement of Forest Certification) is a global alliance of national forest certification programs. It has a similar focus on reducing deforestation and ensuring biodiversity.

Steps to take

Manufacturers

> Pay attention to where your materials are sourced.

> Always offer sustainable options to your clients, even if it costs extra.

Publishers

> Work with manufacturers that offer sustainably sourced materials. Always ask for sustainable manufacturing options.

> Strategize how to use more sustainable materials in your products.

Retailers

> Select games based on whether or not they use sustainable materials. Put pressure on the industry to change.

> Highlight sustainably produced games in stores and websites to increase consumer awareness.

Designers

> Think about sustainability and reducing materials from the very start of your design process. Design games with less.

> Specify sustainable material requirements in your publishing contracts when you can.

Players

> Look for FSC and other certifications on your game boxes.

> Contact publishers and let them know you want them to use sustainable paper and cardstock.

Why this matters

Climate change

> Poorly managed forestry is an important contributor to climate change through deforestation and land degradation.

Ecological effects

> Unsustainable forestry practices can lead to major loss of biodiversity, soil erosion, water pollution, and curtail indigenous rights.

Carbon emissions

> Around 25% of global carbon emissions come from the land sector, and about half of these are related to deforestation and forest degradation.

Criminal logging

> Illegal wood extraction is a primary driver for global deforestation - especially exports to industrialized countries. In Bolivia, Cambodia, Liberia, Papua New Guinea, the Democratic Republic of Congo and many other countries, illegal logging is estimated to account for 70% to 90% of all wood exports.

Case studies > wood, paper and cardstock

Canopy

Tim Eisner / Weird City Games, 2022

> *Canopy* married the game's environmental themes to a real commitment to sustainable design.

> All paper elements in *Canopy* were certified FSC-mix or better.

> Rather than plastic shrink wrap, *Canopy* used a small plastic sticker to seal the box, (and a craft paper cover on the deluxe edition). These solutions keep the box materials more sustainable and also keep the game looking sharp on display.

> For each game sold on Kickstarter, a tree was planted in partnership with the charity Tree Sisters. Marketing around the game emphasizes the importance of sustainability.

Others shifting to certified materials

> Many publishers are adopting policies of only using FSC or PEFC-certified materials.

> German-based publishers Kosmos, HABA, and Ravensburger all use exclusively certified materials for their paper and pulp components. In part this shift was spurred by German government regulations.

> In the US, Clarkson Potter (the game and gift imprint of Penguin/Random House) has voluntarily adopted using only FSC-certified materials in their games.

Plastic

It's time to face up to a hard truth: **we are addicted to plastic.** Among commonly used game materials, plastic by far does the most lasting damage to the planet. Plastics drive fossil fuel exploration and extraction and produce huge carbon emissions during manufacture. At the end of its lifetime, much of it is burned, sent to landfill or ends up in our oceans. Only a tiny fraction of all plastics are recycled, and your plastic game pieces likely won't be either! But if some of them escape to the environment, they will likely cause harm to nature for hundreds of years, after all of us are long gone. It's time to end our addiction to plastic.

GGG best practices > plastic

Best

Certified plastic that's plant-based AND compostable

Climate positive
> made from plants, not fossil fuels

Circular
> components can be easily composted at the end of their life

Design out all plastic

Climate positive
> avoids drilling fossil fuels in favor of lower-carbon materials

Circular
> avoids using materials that will mostly not be recycled

Better

Recycled plastic instead of new plastic

Climate positive
> reduces the amount of fossil fuel extracted

Not circular
> uses recycled content - BUT like most plastic it is unlikely to be recycled at the end of its life

Current

New plastic component manufacturing

Climate negative
> Requires drilling of fossil fuels and produces high carbon emissions

Not circular
> Most plastic around the world is not recycled at the end of its life

The fine print

Plastic recycling just doesn't happen

> The vast majority of plastic components will not be recycled - because humans do a terrible job of recycling plastic, in just about every country around the world. This comes from a combination of high costs, limited recycling options, and too many different types of plastics. In the US and UK, less than 10% of all plastic is actually recycled - and there is no reason you should expect plastic in your game to fare any better. To make matters worse, when plastic is recycled, it loses much of its flexibility, significantly limiting its post-consumer uses.

Making plastic is deadly, energy intensive, and emits greenhouse gasses

> The seven most commonly used plastics are responsible for approximately 70 million tonnes of CO_2e emissions per year and nearly 3% of total US energy consumption. In the environment, micro-plastic continues to emit greenhouse gasses – one preliminary estimate put a figure of 2,129 Mt CO_2e from plastic in the world's oceans.

"Biodegradable" is not the same as "compostable"

> Biodegradable materials often require very specific conditions not possible in the average backyard compost pile. Many governments have official standards about what can be considered a compostable material, and it is a more strict standard for how easily material turns into compost. When possible, make use of compostable materials.

Steps to take

Manufacturers

> Offer recycled, certified plant-based, or compostable options.

Publishers

> Work with manufacturers that offer sustainably sourced materials or choose items that don't require custom molds.

> Reduce or remove all plastic parts.

Retailers

> Select games based on whether or not they have a sustainable approach to the use of plastic.

Designers

> Specify sustainable material requirements in your contracts when you can.

> Always be thinking about how to reduce plastic components in your games.

Players

> Look for games that have less plastic components and packaging.

> Demand that publishers and crowdfund creators ditch plastic.

Why this matters

Plastics are a lifeline to the fossil fuel industry

> The great majority of plastics today are made from fossil fuels. Plastic components have huge carbon footprints, and financially support further fossil fuel exploration and extraction. By eliminating plastic, we help put this industry to bed.

Plastic destroys nature

> Made of polymer chains that degrade very slowly, plastic is incredibly durable. Unfortunately, this means plastic that ends up in the natural environment will cause harm for hundreds or even thousands of years. Rather than degrading, plastics in nature simply break down into smaller pieces over time. When these become tiny microplastic particles, they are spread by water and wind over astounding distances. Today, high concentrations of microplastics are found everywhere: remote areas of Antarctica, uninhabited deserts, and the bottom of the ocean. Microplastics are being found in the bodies of a huge range of animal species studied (including in human breast milk!), with still-unknown effects.

The ocean is paying the price

> The water cycle in nature means that a large proportion of all plastic that escapes to nature ends up in the ocean, where it concentrates in larger amounts every year. The growth of pollution in the ocean is so vast that some estimates predict there will be more plastic than fish in the ocean by the year 2050. A huge body of research has shown that plastic is causing untold damage to life in the ocean, with no end in sight as long as our addiction to plastic continues.

Case study > plastic

Wingspan
Elizabeth Hargrave / Stonemaier Games, 2019

> The original version of *Wingspan* included over 100 individual pieces of plastic in each of its over 1 million copies sold, which attracted criticism from some of the game's nature-loving fans. In August 2022, Stonemaier Games released an ambitious redesign which removed all plastic components.

> The new version of *Wingspan* replaced their signature plastic eggs for wooden ones, swapped plastic trays for sugarcane fiber ones, and plastic bags for biodegradable ones. All paper and pulp components are FSC-certified. Solutions like these could replace a huge portion of plastic used in board games today.

Box and packaging

Look at me! I'm a big and shiny box!

We all know how much tabletop games inflate the size of boxes in order to grab shelf space and catch a consumer's eye - and how we shrink-wrap them in layers of plastic to make them seem even more pristine. But the hard truth is that the way we design boxes and packaging is doing real damage to the environment. Decisions made about boxes and packaging have repercussions throughout the lives of the games we love, impacting emissions from manufacturing, transport, and what happens at the end of a product's life.

GGG best practices > box and packaging

Best

Compact boxes with no plastic wrap, designed for recyclability

Climate positive
> minimal boxes which tightly fit game components will minimize transport emissions per unit

Circular
> no shrinkwrap means no plastic will end up in nature or landfill. Use paper or cardboard solutions for shipping or wrapping, as these are easily and widely recycled

Good

Reduced box size, plastic wrapping on essentials only

Climate positive
> smaller boxes fit more units onto pallets and containers, reducing carbon emissions per unit

Circular
> limiting shrinkwrap to a bare-minimum reduces materials going to landfill

Current

Box & packaging considered only from a commercial perspective

Climate negative
> oversized boxes add excess volume, making shipping more inefficient and increasing carbon emissions per unit

Not circular
> single-use shrinkwraps around boxes, pieces, cartons, and shipping pallets are virtually never recycled

The fine print

Working better together

> Manufacturers and publishers both bear the responsibility of improving packaging, and it will only happen when they work together. Manufacturers should always offer sustainable options and publishers should strategize about how to best use them.

Reduce box weight

> It's not just about size. Shipping costs (and emissions) are often calculated based on weight, as heavier objects increase cost across the shipping route – from handling to delivery vehicles. Reducing weight reduces cost and allows for more efficient shipping - and reduced emissions - for most transport modes.

All boxes are not created equal

> Different kinds of boxes require different amounts of material. For example, a two-piece box (with a separate bottom and lid) requires more paper pulp than a tuck box (with a folding clasp lid). At the same time, many tuck boxes are not as sturdy as two-piece boxes, which reduces lifespan and can increase waste. Consider all factors when designing and manufacturing boxes.

Surface matters

> Avoid UV coatings on box printing - they make boxes unrecyclable. Similarly, don't use plastic-based polymer lamination - it turns boxes into plastic. Finish your boxes with water-based veneer instead.

No more shrink wrap

> Shrink wrapping boxes and internal components is egregiously wasteful and largely unnecessary. Instead, use more durable box wrap or small stickers to seal your boxes. At the same time, not using shrink wrap can sometimes mean more surface and water damage from shipping. (It's a trade-off!) Compostable shrink wrap may be the best option - it protects the game without producing plastic waste.

Healthy on the inside

> Design the internal components of your boxes so there's less shifting/wiggling of internal components, and ensure case packs are snug on boxes. This means reducing inserts and in-box packaging elements whenever possible. Avoid non-essential or disposable items such as unpunched boards. They increase size and weight, which brings the double-whammy of extra carbon emissions and also extra cost. Eliminate shrink wrap around cards and other components - paper bands do the job just fine. Also, move away from plastic trays, towards materials that are recyclable and compostable, such as cardboard organizers and pulp-based trays.

Streamline manufacturing waste

> Work with manufacturing to remove "hidden" waste that pops up in processes a player might never see. For example, if you are asking a manufacturer to reduce the number of internal plastic bags, make sure they aren't first manufacturing those bags - and then are removing and trashing them before the boxes ship.

Don’t forget the pallet

> Everything about individual boxes also applies when packing multiple games for shipping from manufacturing to distribution centers. Avoid and eliminate plastics such as plastic wrapping from pallet packaging - compostable wrapping is a great alternative. Avoid styrofoams and expanded polystyrene fillers for voids and delicate game parts - these materials persist in the environment for decades! Use recyclable or compostable alternatives like air, paper, or cardboard based fillers instead.

Once you’ve done everything else: standardize your box size

> For manufacturers and publishers, sticking to a standard set of box sizes (rather than inventing a custom box for each game) has multiple benefits. Consistent sizing reduces costs from custom shipping and the custom freight boxes that need to be produced. That said, sometimes boxes vary in size in order to improve shipping or display efficiency. So only standardize your box sizes if it doesn’t add additional waste.

Shipping... it’s complicated

> Shipping long distances internationally increases a game’s environmental footprint. However, local manufacturing and distribution is not always a viable option. If your game is being assembled locally but many components are being air freighted from another continent, you may not be reducing the manufacturing impact. As with many industries, we need to strategize and find better solutions.

Steps to take

Manufacturers

> Understand how the form factor impacts freight and logistics.

> Provide options for low emissions transports (e.g., rail and sea, over road and air) and encourage publishers to use them.

Publishers

> Reduce materials in your games that are used for packaging and shipping.

> Standardize box sizes among your products.

> With shipping experts, find optimally efficient sizes for each transport mode.

Retailers

> Select games based on whether or not they use sustainable packaging. If no one stocked shrink-wrapped games, no one would make them anymore.

Designers

> Specify less wasteful packaging as part of your publisher contract - when you can.

> Work with your publisher to reduce box size and unneeded inserts.

Players

> Shift the culture that sees box size as equal to a game's value or price.

> Tell designers and publishers to create better boxes and packaging.

Why this matters

Box size matters

> Box size has combinatorial effects - a bigger box reduces the amount of games that will fit in a case, palette, container or truck. This can significantly bump up the carbon emissions associated with ocean and land shipping for the game. By designing games in a way that is "snug" rather than "loose" you can reduce your game's carbon emissions significantly (in some cases by more than 80%).

Save money too

> Bigger boxes also make everything more expensive. Smaller, lighter boxes can help reduce shipping costs – for publishers but also for the players who buy games.

Wasteful packaging

> All of the considerations about materials we mention in other sections of this guide apply to boxes and packaging too. Case in point: plastic wrap around game boxes is *even harder* to recycle than hard plastic. All of that unnecessary material, as well as punch boards and internal packaging, tend to end up in landfills. The more wasteful material that is in a box, the more waste it creates at the end of its life cycle.

Case studies > box and packaging

Kingdomino
Bruno Cathala / Blue Orange Games, 2016

> *Kingdomino* is a great example of efficient and attractive game packaging. The size of the box walks a fine line between fitting inner components without compromising on ease of access and not leaving too much empty space.

> The fact that the domino tiles are pre-punched avoids the issue of transporting extra weight, and also avoids taking up space that becomes unnecessary once the tiles are removed from the larger sheets on which they are printed.

> At the same time, the box size still presents a substantial art surface for attractive display.

Oink Games
Publisher

> It's clear that the market has conditioned players to think that bigger boxes means a better and more valuable game. But this does not need to be our industry's destiny!

> To take a wonderful counter-example, in many Asian markets, a smaller form factor is seen as an attractive part of a well-designed product. The series of games from *Oink Games* - which come in delightfully tiny boxes - are testament that distinctive quality does not need to be attached to an oversized format.

> When deciding to bring their games from Japan to markets like the US, *Oink Games* resisted pressure to inflate their box to a larger-than-necessary size in order to match supposed consumer expectations. The products still sell very well.

Downtown Farmers Market
Johan Benvenuto, Alandre Droit / Blue Orange Games, 2022

> When entering the US market, *Blue Orange Games* reduced the box size of their product as much as possible. They changed the box design from a standard 2-piece box to a smaller box with a magnetic closure.

Too Many Bones
Josh J. Carlson, Adam Carlson / Chip Theory Games, 2017

> *Too Many Bones* is an evergreen, best-selling premium game title. In their recent "slimline" release (2021) they made the unusual decision to reduce their box size, thus reducing dead air in the box.

> This decision by a game that is already best-selling is a wonderful example of publishers trying harder to publish sustainably.

> While the box size reduction is fantastic, at the same time *Chip Theory* could still reduce the amount of unnecessary plastic in their games. (It's hard to get everything right!)

Choosing the right materials

The hard work of making games more sustainable comes down to the details. How are you wrapping and coating components? Can you reduce or eliminate materials? This section compiles a list of tips and best practices you can put to use right now in your current projects. **These may seem like small steps, but every one of them matters.** In games and in life, big victories can emerge from tiny but crucial decisions.

GGG tips for choosing sustainable materials

Ditch plastic

> If there's one villain in this story, it's plastic. Try to eliminate plastic entirely, unless you are willing to invest significant time and effort to guarantee your plastic components are fossil-fuel free and compostable.

Use wood and paper instead of plastic

> Always choose paper and wood-based alternatives to plastic. Most hard plastic components can be manufactured using wood.

Use recycled pulp when you can

> Switching to recycled material makes a real impact. It's true that some 100% recycled paper products don't have the sharpness of new paper - although for some games they add a distinctive texture. Strategize where you can use recycled materials - in places like box structure, rules, and other elements that don't need extra-crisp art. You can also use FSC Mix paper products, which blend 100% recycled paper with virgin paper from sustainable forestries to achieve greater paper quality.

Doing dice better

> There is a common myth in game manufacturing that balanced dice need to be made out of plastic. They don't! Dice made from wood, recycled plastic, or biodegradable materials are perfectly suitable. Depending on the game, perhaps your dice can be replaced by cards, a random page turn, or something else.

Standees over minis

> Can you replace those figurines with paper pulp elements in stands? Standees allow for more detailed color art at a cheaper price point - and without having to make custom molds. Ideally the standee has a cardstock cross-brace as the base - avoid plastic bases so that you're not just swapping one piece of plastic for another.

Cardstock tokens over plastic tokens

> Thick cardstock tokens can give a satisfyingly hefty "hand feel." They also let you apply color artwork to each token.

On wood, use water-based stains instead of acrylic paint

> If you do choose wood, remember to pay attention to what goes on top. Water-based stains keep the materials compostable.

Use durable box wrap or stickers rather than shrink wrap

> Ditch plastic from the outside of the box as well as from the inside.

Don't add a UV coat

> In recent years, UV coatings have proliferated on a variety of components (cards, box covers, player boards, rulebooks, game boards). But UV coatings make paper products unrecyclable.

Make your inserts out of cardboard or pulp

> Rather than plastic mold inserts or vacuum trays, use cardboard folded trays, cardboard inserts, recessed boards, or pressed or pulped cardboard trays. (Which sometimes can be made out of corn or grass!)

Don’t shrink wrap cards

> Use paper bands or wrap on your card decks and other internal components instead of shrink-wrapping them for that trip from the factory to the player.

Use a card finish with water-based veneer instead of plastic

> This is an older varnish technique which leaves cards still recyclable. Don’t use a modern plastic-based polymer lamination to seal cards - it’s plastic! This applies to boxes, boards, and other materials too.

Full card sheet usage

> Whenever possible, maximize the use of each card or component sheet. Can you make do with a full sheet of cards rather than adding extra components or different types of materials?

Soy-based inks are superior

> Many manufacturers offer soy-based inks as an alternative for printing. They are generally less harmful to the environment.

Paper or wax bags instead of plastic bags for components

> Wax paper is not only more durable than polymer based bags, but they can be recycled or composted, as long as you avoid petroleum based waxes.

Everything in the box should be easily recyclable

> If you do need to include materials that will be immediately thrown out by players (e.g. box and item wrappers), make them out of recyclable materials. Otherwise, you are literally creating pure waste.

Shift expectations of perfect quality

> A good amount of manufacturing waste happens because components are over-engineered for flawless consistency. For example, standards for inking accuracy on dice means too many dice are thrown out and never used. Players won’t mind if there are small flaws in game manufacturing - especially if they are told it’s for sustainability.

Longer-lasting is better

> Long-lasting materials are ecological because it means that each game can have a longer lifespan. But the great majority of most games will be disposed of at some point, which is why durability is not a replacement for the need to make games out of recyclable and/or compostable materials.

Consider the full life cycle

> Are the materials in your game ultimately landfill bound? Can they be recycled or repurposed? If they escape to nature for whatever reason, will they still be out there causing harm when your great great great grandkids are here?

Why this matters

Paper pulp gets recycled

> Paper and cardstock are some of the most likely materials to be recycled after their lifecycle. In the US, the Environmental Protection Agency estimates that 68% of all paper produced is recycled, and 74% in the EU, according to the European Paper Recycling Council (EPRC). This is because there are well-developed processes for collecting paper and cardboard for recycling, because they are easy and cheap to recycle once collected, and because the market price for paper is typically higher than the cost of recycling it.

Plastic... not so much

> In contrast, the EPA estimates that only 8.7% of plastic is recycled. There are similarly low rates of plastic recycling in just about every country around the world. This is partly because plastics can be hard and expensive to recycle, because the wide variety of plastic types makes collection significantly harder, and because the cost of recycling is often high.

Case studies > choosing materials

Cheapass Games

> We take for granted that every game needs to include every component needed for play. What if it didn't?

> Founded by James Ernest in the 1990s and 2000s *Cheapass Games* produced dozens of titles. Key to the ethos of the company was the acknowledgement that many items in a game box are generic pawns and dice that players already own. *Cheapass Games* were sold in "no-frills" envelopes, with a promise of low-cost components but fun and innovative gameplay.

> The particular lo-fi sensibility of *Cheapass Games* is not for every publisher. But it provides a delightfully inventive alternative to the status quo of wasteful production. Today's thriving culture of print & play games owe so much to the experiments of *Cheapass Games*.

Elevenses the Card Game of Morning Tea
David Harding / Adventureland Games, 2014
Painted by Roses
Ben Goldman / NorthStar Game Studio, 2022

> Crowdfunded games often create mountains of unnecessary swag, in a desperate attempt to supply players with stretch-goal trinkets. But plenty of designers and publishers are bucking that trend.

> *Adventureland Games* and *NorthStar Game Studio* are part of a growing number of crowdfunded games that eliminate stretch goals in a conscious effort to reduce waste.

> As an extra bonus, not having to design, manufacture, and ship all of the extra items saves a lot of money - and means everyone can focus more on making the core game great.

What's next

First: Tell everyone you know about the *Green Games Guide*. Email the guide to your friends and colleagues. Spread the word on social media. The more the merrier.

And - of course! - follow the GGG suggestions and guidelines. If you have gotten this far, you may have noticed that the *Green Games Guide* has a strong emphasis on the material aspects of games. When it comes to changing games, rethinking games as physical objects offers the clearest path forward. We can talk with utter confidence about why plastic shrinkwrap and uncertified wood are bad for the planet.

But if things are really going to change, we have to dig deeper. Because if we are going to overhaul an entire industry, it is going to take more than sourcing new materials. It is going to take a cultural shift too. We need to change the idea that quality equals waste - that a giant box and oodles of unnecessary plastic swag signify a great game. **We need to flip the script on how we define good design.** Good design can mean elegant, minimal, efficient, considerate, appropriate design. Good design should mean design that takes human labor, the environment, and the climate crisis into account.

And there's still more. We need to go even deeper and look critically at the games themselves. To take an obvious example: Why are so many games about power fantasies of domination and colonization? Don't get us wrong - we love the satisfaction of bashing our friends around the game table as much as anyone else. At the same time, we can't help but observe the connection between the way we humans treat our planet and the prevalence of games that indulge uncritically in themes and mechanics of exploitation and conquest. This may seem like a side issue. But it is part of the culture we want to change. Culture (like tabletop games) reflect the times in which they are made. But they also influence and spread ideas and attitudes. What do we want to say with the games we make?

One thing to clarify: **this is not a call for narrowing what games are - this is a demand for *radical expansion*.** For publishers, designers, players, and manufacturers to more fully engage with how the games they make are designed and manufactured - and how they impact the climate, the environment, and the world we inhabit.

These are not easy problems to solve. But if there is one thing that games have taught us, it's that solving tough problems is a worthwhile endeavor. We take on problems - for fun! - every time we play a game. And it's always better when we're not alone - when we gather together, shoulder to shoulder around a game table. We put our full spirit into the problem at hand - to play our hearts out, to challenge each other, and to work through the problem together.

So here we are. Play passes to the left. Looks like it's your turn now.

With love and respect,

The Green Games Guide Board

More info

General Resources
> International Game Developers Association SIG website
> Digital Games After Climate Change (book by Ben Abraham)

Paper Pulp
> FSC and PEFC Certification info: www.fsc.org / www.pefc.org
> J. Gan, P. O. Cerutti, M. Masiero, D. Pettenella, N. Andrighetto and T. Dawson, 'Quantifying Illegal Logging and Related Timber Trade' in D. Kleinschmit, S. Mansourian, C. Wildburger and A. Purret, 2016, *Illegal Logging and Related Timber Trade – Dimensions, Drivers, Impacts and Responses, A Global Scientific Rapid Response Assessment Report*, International Union of Forest Research Organizations.
> TNR Reporting on illegal logging in Romania.

Carbon offsets & carbon removals
> MIT Climate Portal explainer on Carbon Offsets.
> Carbon Brief 'Why CO2 removal is not equal and opposite to reducing emissions'
> Guidance on removals: 'Microsoft carbon dioxide removal procurement cycle'.

Plastic
> United Nations Environment Program, Why we need to fix the plastic pollution problem, Feb 25, 2022.
> World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, 2016, *The New Plastics Economy: Rethinking the future of plastics*.
> Greenpeace, *Plastic's Circular Claims Fall Flat Again*, 2022.
> D. Posen, P. Jaramillo, A. E. Landis and W. M. Griffin, 2017 'Greenhouse gas mitigation for U.S. plastics production: energy first, feedstocks later', *Environmental Research Letters* 12**,** 034024, DOI: 10.1088/1748-9326/aa60a7
> L. A. Hamilton and S. Feit, 2019, *Plastic & climate: The hidden costs of a plastic planet.* CIEL. CID: 20.500.12592/qctxbd.

Right-sized Packaging
> Useful resource on right-sizing packaging.