Sustainability, Cricket Gear, Clothing & Apparel

Stakeholder Workshop

15th July 2021

BASIS in partnership with UCA Business School

Professor Martin Charter

Director, The Centre for Sustainable Design ®

Business School for the Creative Industries

University for the Creative Arts (UCA)


FEARNLEY
VIPER

40+

SUSTAINABLE DEVELOPMENT GOALS

UN Sustainable Development Goals (SDGs) and cricket gear: framework for discussion (V1: Martin Charter 23/03/21)

SDGs		Shirts	Trousers	Leg Guards	Gloves	Boots/shoes	Balls	Protectors (Boxes)	Bats
Environment	6. Clean Water								
	7. Clean Energy								
	11. Cities & Communities								
	12. Responsible Consumption & Production								
	13. Climate Action								
	14. Life Below Water								
	15. Life on Land								
Society	2. Zero Hunger								
	3. Good Health								
	4. Quality Education								
	5. Gender Equality								
	10. Reduced Inequalities								
	16. Justice & Strong Institutions								
	17. Partnerships								
Economy	1. No Poverty								
	8. Decent Work & Growth								
	9. Innovation & Infrastructure								

Environment: UN Sustainable Development Goals (SDGs) and cricket gear: framework for discussion

SDGs		Shirts	Trousers	Pads (Leg Guards)	Gloves	Boots/shoes	Balls	Bats	Helmets	Bags
Environment	6. Clean Water	Dyes, chemicals, water pollution	Dyes, chemicals, water pollution	Water pollution (leather tanning)	Water pollution (leather tanning)	Dyes, chemicals, water pollution	Water pollution (leather tanning)		Dyes, chemicals, water pollution (metals)	Dyes, chemicals, water pollution
	7. Clean Energy									
	11. Cities & Communities	Landfills	Landfills	Landfills	Landfills	Landfills	Landfills	Landfills	Landfills	Landfills
	12. Responsible Consumption & Production	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials	Circular models: repair, reuse, refurbishment, recycled materials
	13. Climate Action	Carbon emissions	Carbon emissions	Carbon emissions	Carbon emissions	Carbon emissions	Carbon emissions	Carbon emissions		
	14. Life Below Water	Microplastics	Microplastics	Microplastics	Microplastics	Microplastics	Microplastics		Microplastics	Microplastics
	15. Life on Land							Biodiversity e.g. Willow, etc		

Source: Martin Charter & Yashi Dadhich, 2021

Social: UN Sustainable Development Goals (SDGs) and cricket gear: framework for discussion

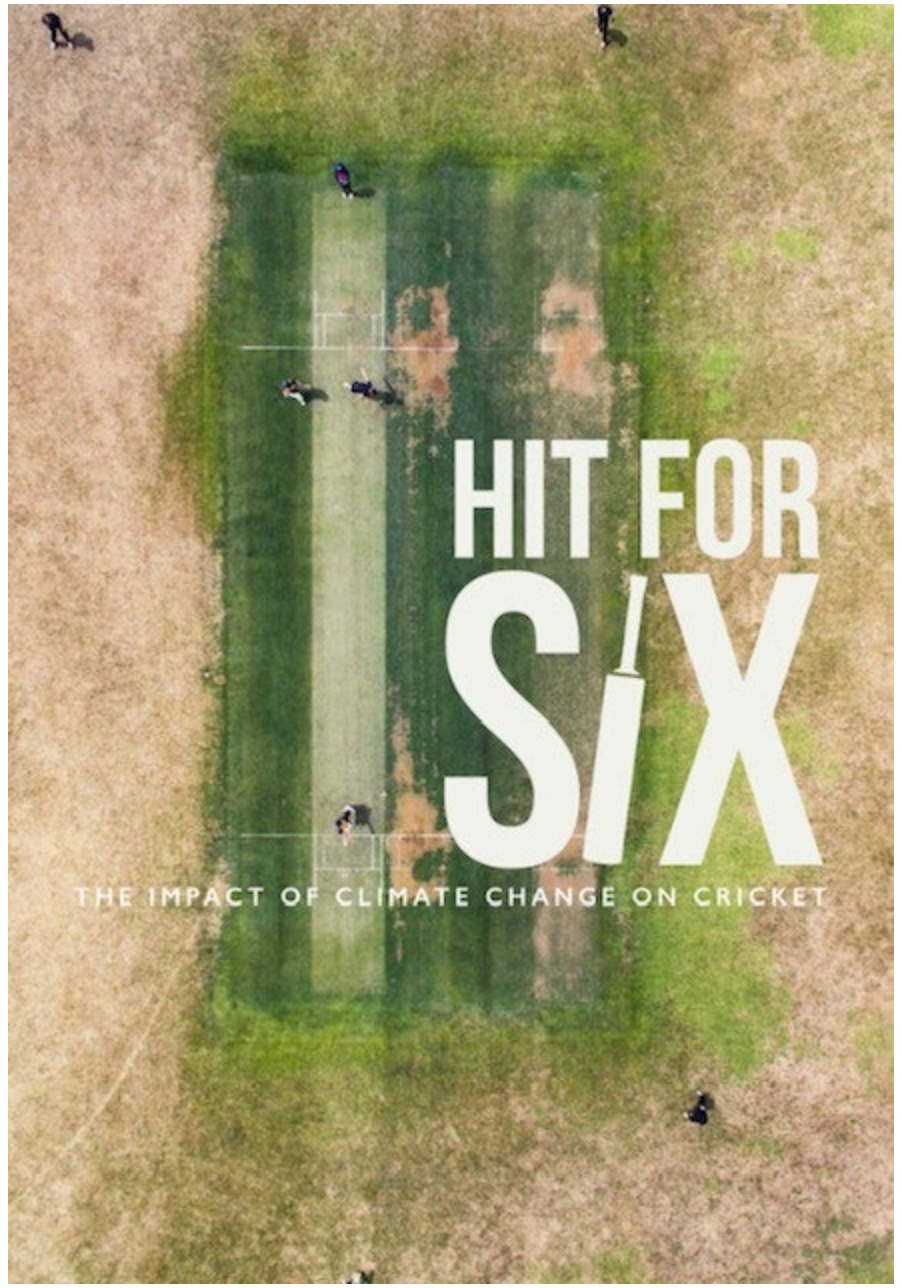
SDGs		Shirts	Trousers	Pads (Leg Guards)	Gloves	Boots/shoes	Balls	Bats	Helmets	Bags
Society	2. Zero Hunger									
	3. Good Health	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers	No health insurance for workers
	4. Quality Education									
	5. Gender Equality	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?	Mostly women employed?
	10. Reduced Inequalities									
	16. Justice & Strong Institutions									
	17. Partnerships									

Source: Martin Charter & Yashi Dadhich, 2021

Economic: UN Sustainable Development Goals (SDGs) and cricket gear: framework for discussion

SDGs		Shirts	Trousers	Pads (Leg Guards)	Gloves	Boots/shoes	Balls	Bats	Helmets	Bags
Economy	1. No Poverty 	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay	Supply chain issues, garment workers pay
	8. Decent Work & Growth 	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)	Unsafe work places (outsourced factories)
	9. Innovation & Infrastructure 	Production facilities	Production facilities	Production facilities	Production facilities	Production facilities	Production facilities	Production facilities	Production facilities	Production facilities

Source: Martin Charter & Yashi Dadhich, 2021


HIT FOR
SIX
THE IMPACT OF CLIMATE CHANGE ON CRICKET

Climate Change

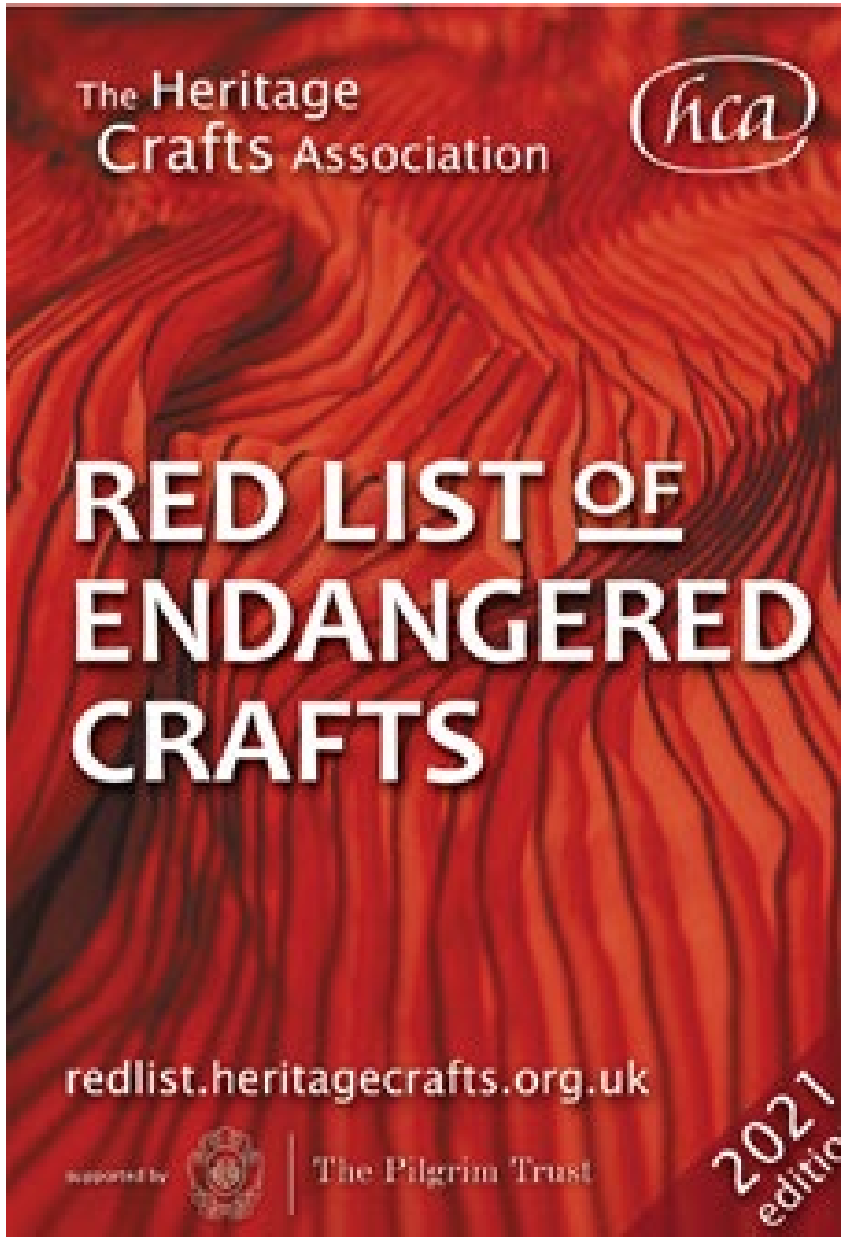
Innovation

Circular Economy

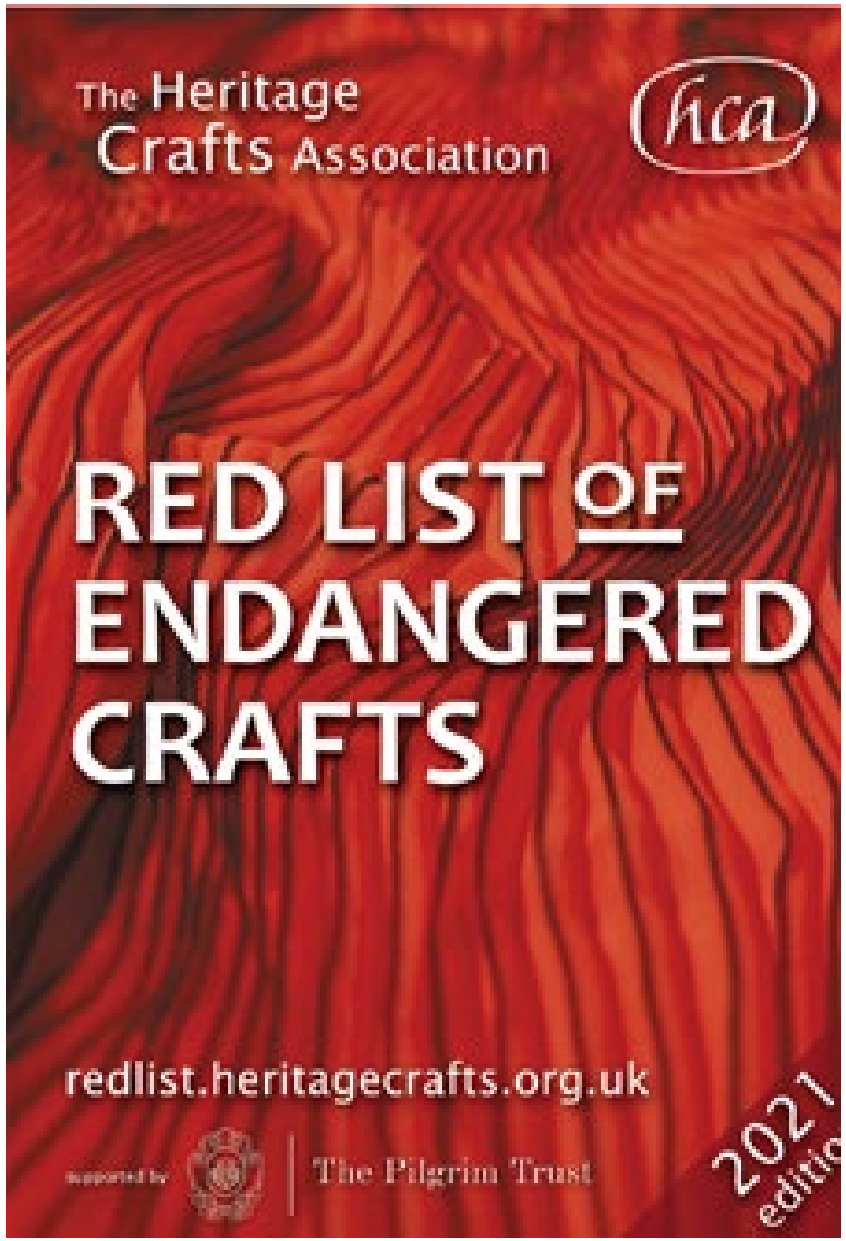
COST

Performance

Tradition


The Heritage
Crafts Association
hca
RED LIST OF
ENDANGERED
CRAFTS
redlist.heritagecrafts.org.uk
The Pilgrim Trust
2021


A
Duke & Son
SPECIAL COUNTY
MADE IN ENGLAND


The Heritage
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hca
RED LIST OF
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CRAFTS
redlist.heritagecrafts.org.uk
The Pilgrim Trust
2021

POWERBAT

Spektacom initial offering for Cricket - PowerBat Sticher - A Smart Sticher for Cricket Bats

Sensor Technology
Our non-intrusive, high quality sensor captures key batting parameters as the action happens in real-time

Wireless Charging
Seamless and effortless wireless technology to power up the bat sensor

Connects With Your Phone App
The PowerBat connects with the app to deliver all the metrics

Real-Time Insights
The shot data is updated on the app in real-time for providing insights to player performance.

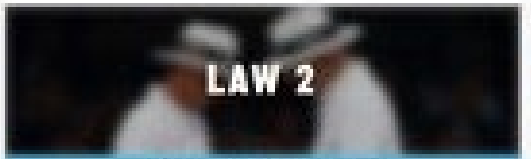
LOGIN

PREAMBLE

PREAMBLE TO THE LAWS: SPIRIT OF CRICKET

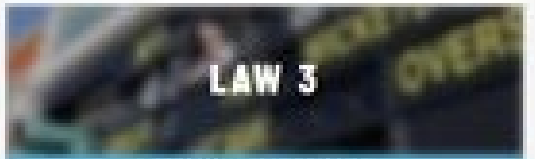
SETTING UP THE GAME

THE PLAYERS



SETTING UP THE GAME

THE UMPIRES

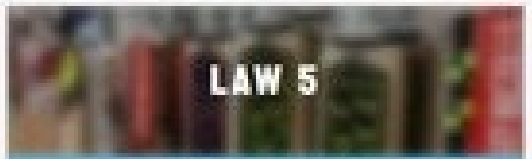


SETTING UP THE GAME

THE SCORERS

SETTING UP THE GAME

THE BALL



SETTING UP THE GAME

THE BAT

SETTING UP THE GAME

THE PITCH

SETTING UP THE GAME

THE CREASES

2021 BSI CRICKET EQUIPMENT STANDARDS

Cricket Balls

• Law 4 of ’the Laws of Cricket’ states that the ball, when new, shall weigh not less than 5.5 ounces/155.9 g, nor more than 5.75 ounces/163 g, and shall measure not less than 8.81 in/22.4 cm, nor more than 9 in/22.9 cm in circumference.

• BS 5993:1994. Specification for cricket balls. Published Date: 15/01/1995 **Status: Confirmed, Current**

• BS 5993:1987. Specification for leather-covered cricket balls. Published Date: 31/03/1987 **Status: Revised, Withdrawn**

• BS 5993:1980. Specification for leather-covered cricket balls. Published Date: 29/08/1980 **Status: Revised, Withdrawn**

Cricket Bats

- No BS standard related to cricket bats

- Law 5 of the ’Laws of Cricket’ states that the length of the bat may be no more than 38 inches (965 mm), the width no more than 4.25 inches (108 mm), the overall depth no more than 2.64 in (67 mm) and edge no more than 1.56 in (40 mm).

- Bats typically weigh from 2 lb 7 oz to 3 lb (1.2 to 1.4 kg) though there is no standard.

- In 1979, following the aluminium bat incident, the laws were amended to specify that cricket bats had to be made out of wood

- Appendix B of the Laws of Cricket set out more precise specifications.

Headgear

• BS 7928:2013+A1:2019 (Amendment) - TC. Specification for head protectors for cricketers. Published Date: 12/11/2020. **Status: Current**

• BS 7928-2:2009. Head and face protection for cricketers. Face protectors for cricket wicket-keepers. Published Date: 31/12/2009. **Status: Confirmed, Current**

• BS 7928:1998. Specification for head protectors for cricketers. Published Date: 15/11/1998. **Status: Revised, Superseded, Withdrawn**

Other Protective Equipment

• BS 6183-4:2001. Protective equipment for cricketers. Gloves for batsmen. Published Date: 15/03/2001. **Status: Confirmed, Current**

• BS 6183-3:2000. Protective equipment for cricketers. Leg protectors for batsmen, wicket-keepers and fielders, and thigh, arm and chest protectors for batsmen. Published Date: 15/05/2000. **Status: Confirmed, Current**

• BS 6183-1:2000. Protective equipment for cricketers. General requirements. Published Date: 15/02/2000. **Status: Confirmed, Current**

• BS 6183-2:2000. Protective equipment for cricketers. Genital protectors. Published Date: 15/02/2000. **Status: Confirmed, Current**

• BS 6183-1:1981. Protective equipment for cricketers. Specification for batting gloves, leg guards and boxes. Published Date: 31/12/1981.
Status: Revised, Superseded, Withdrawn

“England ace Sam Billings banned from using his eco-friendly gloves as bright design leaves ICC feeling off colour

- The ICC have banned England’s Twenty20 vice-captain Sam Billings from wearing his new eco-friendly batting gloves because they contravene an *obscure colour-related kit regulation*.
- Billings was told by ICC match referee Andy Pycroft before Friday’s series opener against New Zealand in Christchurch that the Gray-Nicolls gloves – known as ‘Off-Cuts’ because they are made from recycled cricket equipment, including sweatbands, padding and leather – were illegal.
- The problem arose because *regulations state that more than 50 per cent of any batting glove worn in a limited-overs international ‘must be white, or the same colour as the base colour of the relevant team’s playing shirt*’.”

Daily Mail: LAWRENCE BOOTH **PUBLISHED:** 07:18, 2 November 2019 | **UPDATED:** 07:18, 2 November 2019

Cricket Bats


adidas
XT
adidas
INCURZA
GRAY-NICOLLS
GRAY-NICOLLS
NEWBERY
GM
KG 560
DC 1080
CHASE
KOOKABURRA


GRAY-NICOLLS


MONGOOSE


S
JUMBO
S
STUART SURRIDGE
ENGLAND
Original
SS
JUMBO


HARDY'S
HARDY'S


kwik
CRICKET
CRICKET
SMCC
SMCC
SMCC
SMCC

Cricket mania is a big hit for firm

by **Samantha Clark**

Joe Sillett of Woodworm with one of the firm's popular bats. C5360994

ENGLAND'S success in the Ashes series has led to rocketing sales for a Billingshurst cricket company.

Based in Coneyhurst Road, Woodworm signed a sponsorship deal with superstar 'Freddie' Flintoff in 2003.

And residents should look out for the famous player as he is expected to drop into the Rosier Business Park soon.

The firm's success will, however, have little impact on job opportunities in the village.

It only has five employees and the actual production is carried out in Taiwan, China, Indonesia and India.

Managing director of Woodworm Joe Sillett said: "We love being involved in cricket and supporting very good high calibre players.

"Originally we sat down and had a long look at the England dressing room. So we approached Freddie Flintoff's management agent.

"Over a period of time we had a series of meetings and discussions. It started to raise interest very quickly – almost overnight.

"It is a simple formula of airtime and plus success on the field."

With the success of the England team, the business is parrying offers from banks, venture capitalists and trade buyers.

Only formed in 2002, Woodworm is now responsible for one in every ten bats sold in Britain.

As August sees the close of the cricket season, sales usually slump.

But last month they were up three times their normal average for this time of year.

Mr Sillett, 33, said: "There is an email every day saying I would love to provide some of your business.

"We have had several people over the course of the last few weeks saying they would want to put some money in.

"There is a direct link between success on the field and communicating your brand image on television. It has gone nuts.

"I have just taken on a new member of staff. We see a big future for Woodworm outside of cricket."

From its early beginnings it sold 200 bats a year – now it is in the region of 15,000.

Defending the firm's use of cheaper Third World labour, rather than local people, Mr Sillett said: "India in terms of bat making and cricket equipment making is very much the Mecca worldwide.

"There are a lot of experts out there. They take their cricket very seriously.

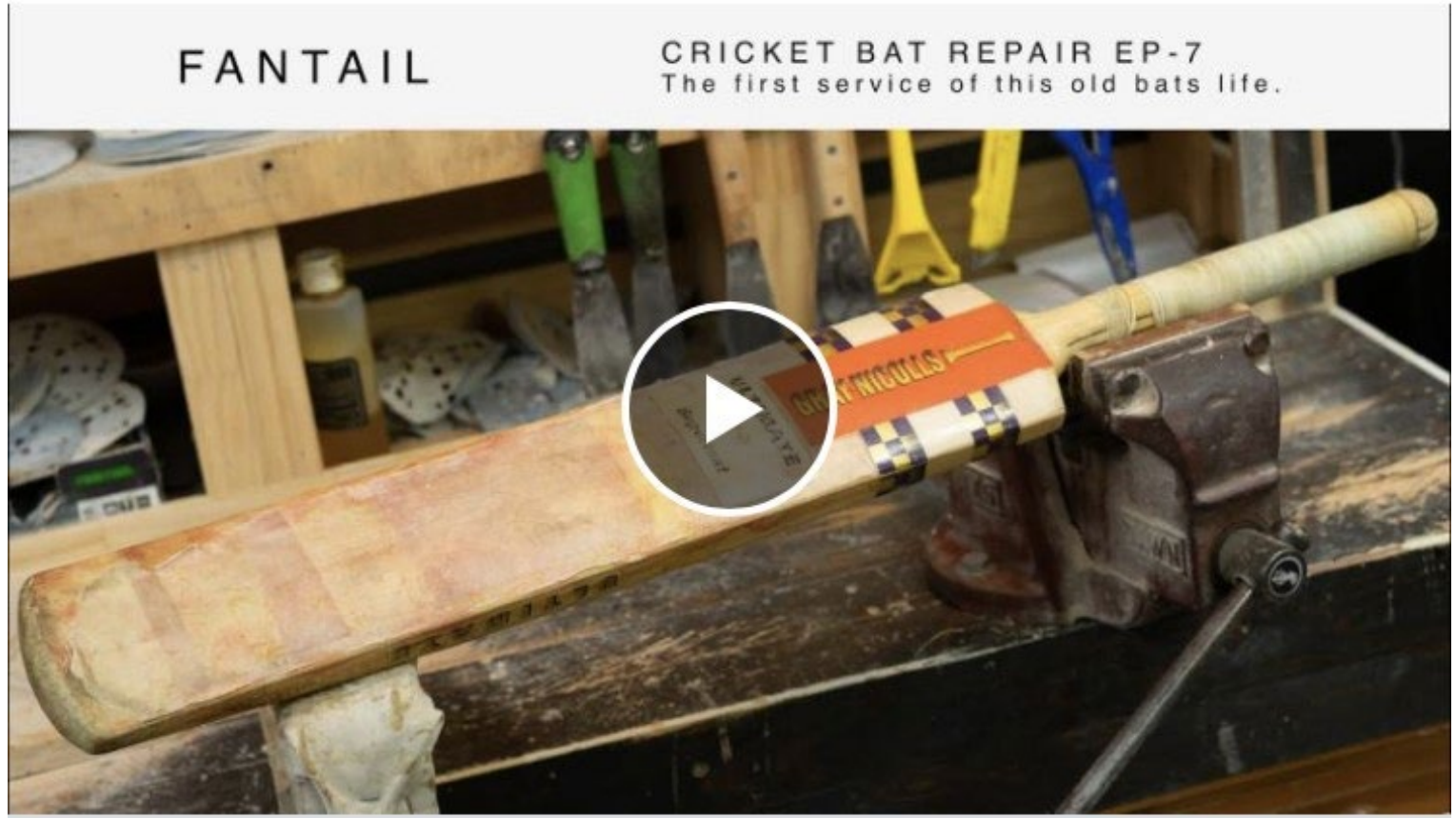
"And have we got to look at the economic viability of what we are doing."

Once the cricket market is cornered there are plans afoot to expand into other avenues.

But for the meantime Mr Sillett and his fellow company founders, Michael Hilard and David Brawn, are very busy dealing with an awful lot of media interest.

Apart from an article in the Daily Telegraph, he said the BBC World Service and Radio Five Live were due to pay them a visit too.

Cricket Bat Repair & Refurbishment



Cricket Bat Repair EP-7 - The first service of this old bats life.

youtube.com


SERVICES AND REPAIRS
KNOCKING IN · $49.90
FIT TOE GUARD · $18.90
APPLY NEW FACING · $14.90
CRACK REPAIR · $29–49
CLEAN FACE · $29.90
FULL REFURBISH $60
REBALANCE · $80
HANDLE REPLACEMENT · $70
HANDLE RE-BIND · $29.90
HANDLE RE-SHAPE · $39.90
FANTAIL REVAMP STICKERS · $15
FANTAILCRICKET.COM
GRADE 1 - $589.90
GRADE 2 - $529.90
FANTAIL CRICKET

“PRODUCT

One of our key focus areas is choosing our materials because they account for more than 70% of any product footprint. By using recycled plastics, yarns and textiles, we will significantly reduce our emissions. We also continue developing how our products are made to ensure we are minimising waste and recycling materials where possible.”

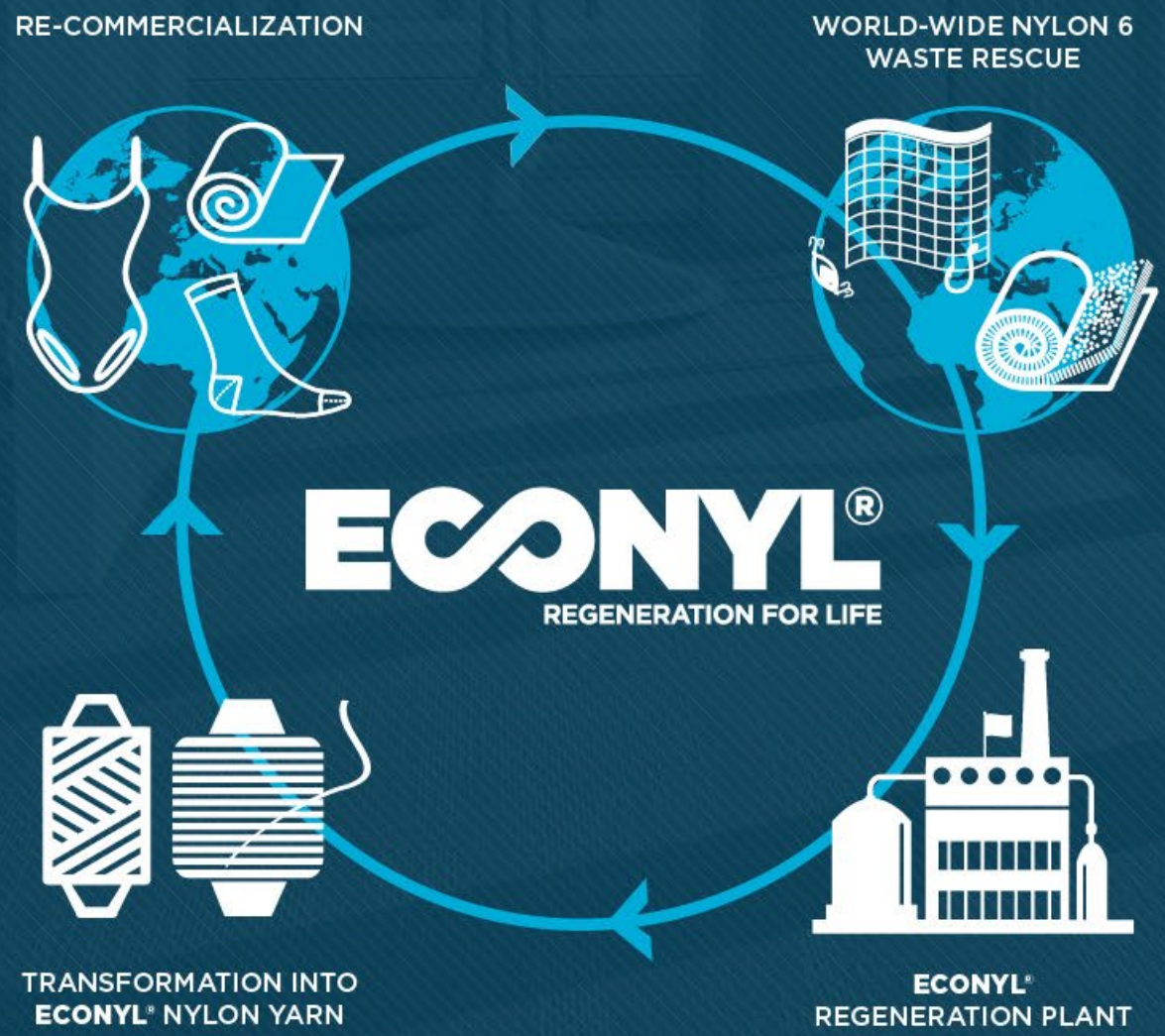
WHAT DOES THIS MEAN?

Clothing & Apparel in Cricket

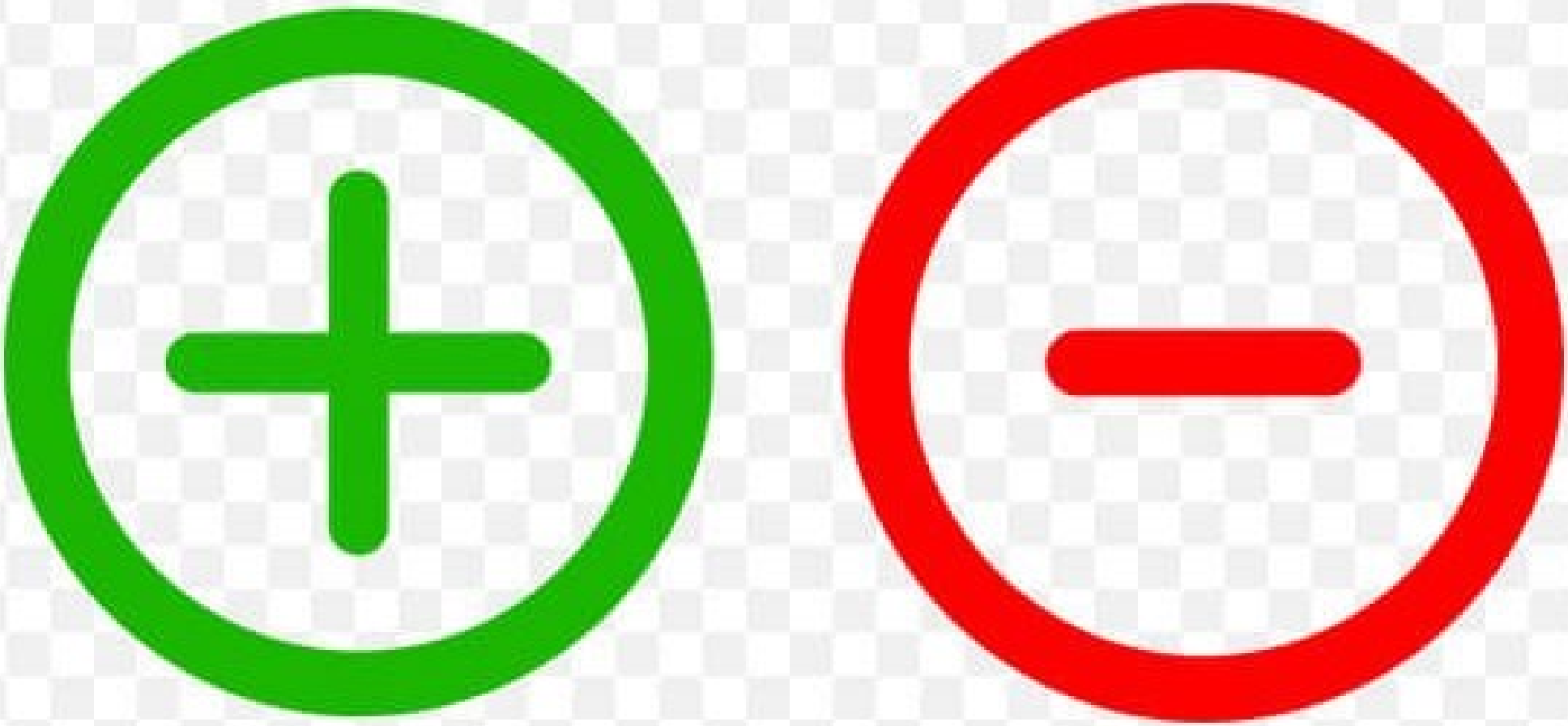

£18
Brit
Insurance
£65
£50


COUNTY
30" 42"
sports
apparel
get
padded
up
image
© copyright


61 DEEP
PALE ALE
PRO:DIRECT

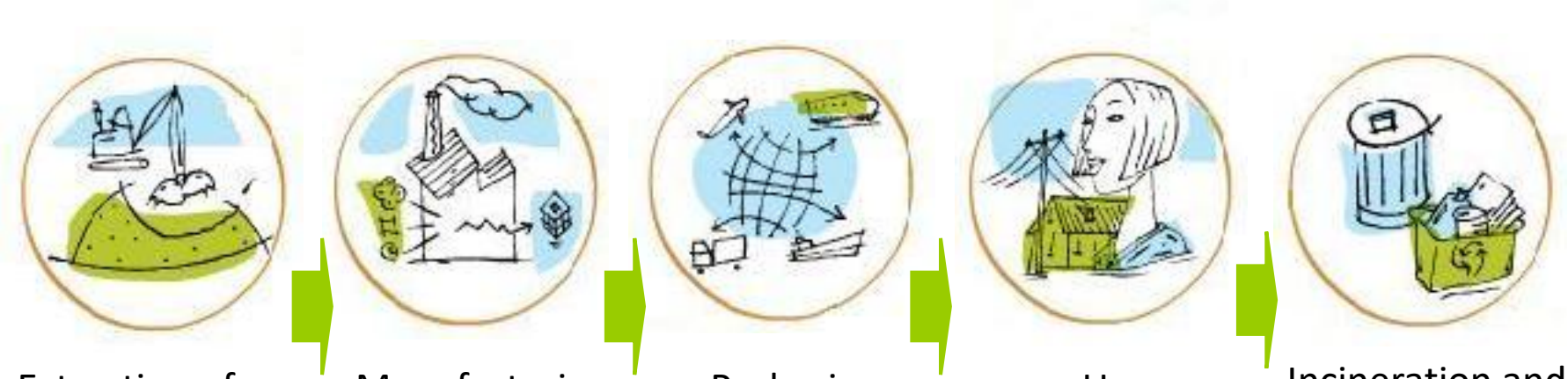

RE-COMMERCIALIZATION
WORLD-WIDE NYLON 6
WASTE RESCUE
ECONYL®
REGENERATION FOR LIFE
TRANSFORMATION INTO
ECONYL® NYLON YARN
ECONYL®
REGENERATION PLANT


A GUIDE TO
VEGAN LEATHER




PRESENT
FUTURE
PAST

‘Cradle to grave’ product life thinking (traditional)



Extraction of raw materials

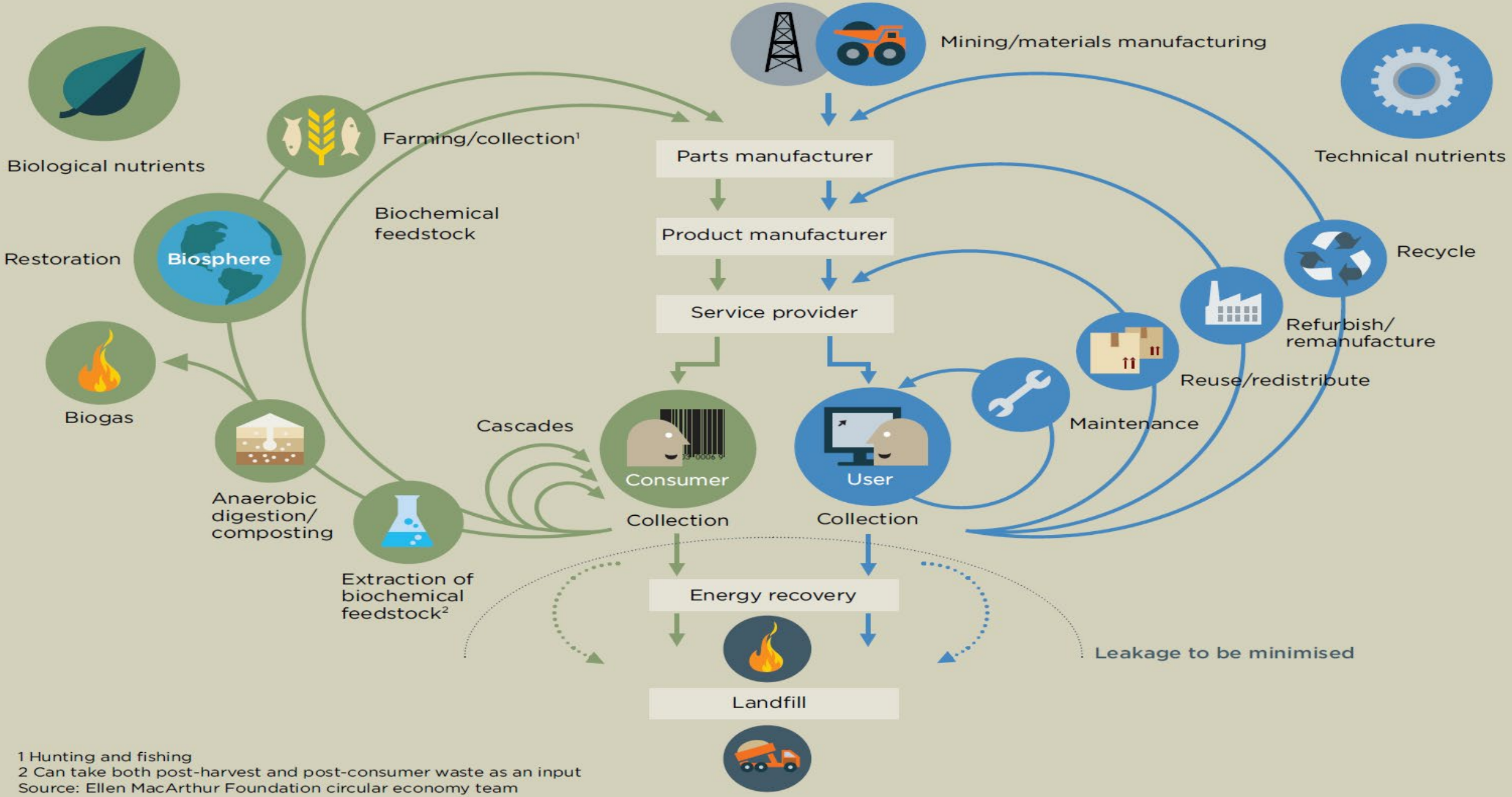
Manufacturing

Packaging and distribution

Use and maintenance

Incineration and disposal

FIGURE 6 **The circular economy—an industrial system that is restorative by design**



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation circular economy team

Circular Design of Cricket Gear

Product: Gloves

Generic eco-design checklist that features product circularity considerations in *italics* (non- exhaustive)

Design Focus Area	Options for Design Improvement	Discussion
Design for Material Sourcing	*Reduce weight and volume of product*	
	Increase use of recycled materials to replace virgin materials	
	Increase use of renewable materials	
	Increase incorporation of used components	
	Eliminate hazardous substances	
	Use materials with lower embodied energy and/or water	
Design for Manufacture/Assembly	Reduce energy consumption	
	Reduce water consumption	
	Reduce process waste	
	Use internally recovered or recycled materials from process waste	
	Reduce emissions to air, water and soil during manufacture	
	Reduce number of parts	
Design for Transport and Distribution	*Minimise product size and weight*	
	Optimise shape and volume for maximum packaging density	
	Optimise transport and distribution in relation to fuel use and emissions	
	Optimise packaging to comply with regulation	
	Reduce embodied energy and water in packaging	
	Increase use of recycled materials in packaging	
	Eliminate hazardous substances in packaging	
Design for Use (Including installation, maintenance and repair)	Reduce energy in use	
	Reduce water in use	
	Increase access to spare parts	
	Maximise ease of maintenance	
	Maximize ease of reuse and disassembly	
	Avoid design aspects detrimental to reuse	
	Reduce energy used in disassembly	
	Reduce water used in disassembly	
	Reduce emissions to air, water and soil	
	Eliminate potentially hazardous substances that can be released during use	
	Maximize ease of materials recycling	
Design for End of Life	*Avoid design aspects detrimental to materials recycling*	
	Reduce amount of residual waste generated	
	Reduce energy used in materials recycling	
	Reduce water used in materials recycling	

Source: Adapted from Charter M, Designing for the Circular Economy, 2017

Sustainability, cricket equipment, clothing and apparel

Matthew Wetherfield

BASIS and CfSD Research

Research Findings: Materials - Cricket Balls

Core

- Machined from compressed bark of Portuguese Cork Trees.

Cork

- Ability to absorb large impacts whilst maintaining its shape.

Casing

- 3 to 5 Layers of Worsted Yarn quilted inside a leather casing

Worsted Yarn

- Ductile and non-elastic, chosen as a strong, lightweight material to be tightly wounded around cork core.

Leather

- Tanned with aluminium salts – known as alum-tanned leather. Binders/Proteins also involved/increases resistance and durability of the leather.

Nitrocellulose Lacquer

- Protects leather from chemicals used to maintain playing surfaces (fertiliser) and improves resistance under conditions of increased abrasion (fast bowling).

Pathways for innovation: Cricket Balls

Present

Leather

- Ethical Concerns over use of animal hides

Cork

- Takes between 25 to 30 years for Trees to mature. Lack of supply associated with high manufacturing costs.

However: Sustainable Source of C02 storage.

- Cork Trees absorb up to 3 times more C02 once their bark has been harvested

Innovation

Vegan leathers

- Plant-based alternatives developed from Pineapple (Pinatex®) and Cactus leaves (Desserto®)

Bamboo fibres

- Suggested as a quicker-growing, equally durable alternative core material.

Research Findings: Materials - Cricket Bats

Present

Willow

- Harvested from “Cricket Bat” Willow Trees – Primarily located in the East of England. Concerns over limited supplies/ questions over how to source it to developing cricket nations (e.g. China). Takes 15 years for trees to mature ready for harvesting.
- 25% harvest unusable owing to defects in the wood.

Sugar Cane

- Multiple types used in production of handles, including Indonesian Manu Cane and Malaysian Sarawak Cane.
- Spliced and glued with up to 3 layers of Cork or Rubber – Serves to absorb shock of energy transfer.

Substitute

Bamboo

- Matures within 1/3 of the time willow takes.
- Able to be harvested multiple times over a 30 year cycle.
- Cheaper material/ More plentiful in emerging cricket nations.
- Absorbs up to 4X more carbon during growth than spruce forests.

Pathways for innovation: Cricket Bats

Bamboo Bat

- Prototype bat developed by researchers at the University of Cambridge alongside Suffolk-Based manufacturer *Garrad and Flack,* using Moso Bamboo.

Laminated Bamboo

- Produced through laminating culms of *Moso Bamboo* into planks using a soy-based resin (Purbond HB S309).
- Quicker manufacturing process: faster modelling process/no “knocking in” required.
- Strong/Durable:
  - Higher density owing to its natural fibres.
  - Improved stiffness, 22% higher than willow bats.
- Improved performance:
  - Larger “Sweet Spot” –> facilitates improved transfer of force from bat to ball.
  - Capable of shots 18.9% ‘bouncier.’

Next Step

- Weight Reduction – Prototype 40% heavier than contemporary bats.


12
3
6
9

Sustainable HUNDRED 2022?

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