



Carbon Footprint of Thai Silk Products

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The Carbon Footprint of Products (CFP)

Definition

A system which displays the carbon footprint of products on the packaging allowing consumers to obtain reliable information about GHG emissions and make informed decisions.

Carbon footprint thus calculates the carbon dioxide equivalent (CO₂eq) of the GHG emissions releasing from the raw material acquisition, manufacture, use, waste management and final disposal including related transports in all stages.



Carbon Footprint Logo in Thailand



- The Logo displays the total set of greenhouse gas (GHG) emissions accumulated during the full life cycle of a product in a specified application.
- Number XXXg shows carbon footprint value of the product



Thailand Greenhouse Gas Management Organization (Public Organization: TGO)

QSDS under Collaboration between the National Metal and Materials Technology Center, Thailand (MTEC), and the National Science and Technology Development Agency (NSTDA) under the Ministry of Science and Technology, has promoted the development of the Carbon Footprint for Products (CFP) project.



Benefits of Carbon Footprint of Products (CFP)

For Consumers

- Provides information on the greenhouse gas emissions of products and services, assisting them in making informed purchasing decisions and providing them the opportunity to participate in GHG management.



Benefits of Carbon Footprint of Products (CFP)

For Manufacturers

- Establishes a positive image of an organizations commitments towards GHG mitigation.
- Ready for upcoming regulatory standards, such as ISO14067 standard (expected to be launched in 2011) and other environmental standards set by developed countries that require carbon footprint labeling for exported silk products.
- Economic benefits in the long term by adopting Low emission technologies and manufacturing methods.



Objectives

- To assess and register Carbon Footprint of Thai Silk Products
- To develop procedures to reduce costs and greenhouse gas emission



Scope of activities LCA under ISO 14040

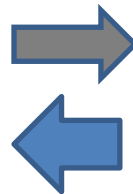
1. Goal and scope definition



2. Inventory analysis



3. Impact assessment



4. Interpretation





Scope of Research :Case Studies

Thai Silk Products



Natural Color, Hand
Woven Silk Fabric



Natural Dyed Silk
Shawl



Silk Pocket Square
(natural color)



Data Collection

Primary data- All direct activities including energy and raw material use, manufacturing, transport, etc.

Secondary data – Research and reference from National LCI data base for packaging, waste, electricity, etc.



Methods of Analysis

- ➔ Life Cycle Assessment (LCA) is a quantitative analytical method used to evaluate the total environmental impact arising from production, use, and end of life phases of a product or service
- ➔ A carbon footprint on the other hand, is a subset of LCA methodology with analysis limited to emissions that have an effect on climate change.
- ➔ A carbon footprint of a product refers to the total set of GHG emissions (CO_2 , CH_4 , N_2O , PFCs, etc) associated with the product in its life cycle – i.e. raw materials, manufacturing, transportation, product use and disposal



Natural Color, Hand Woven Silk Fabric

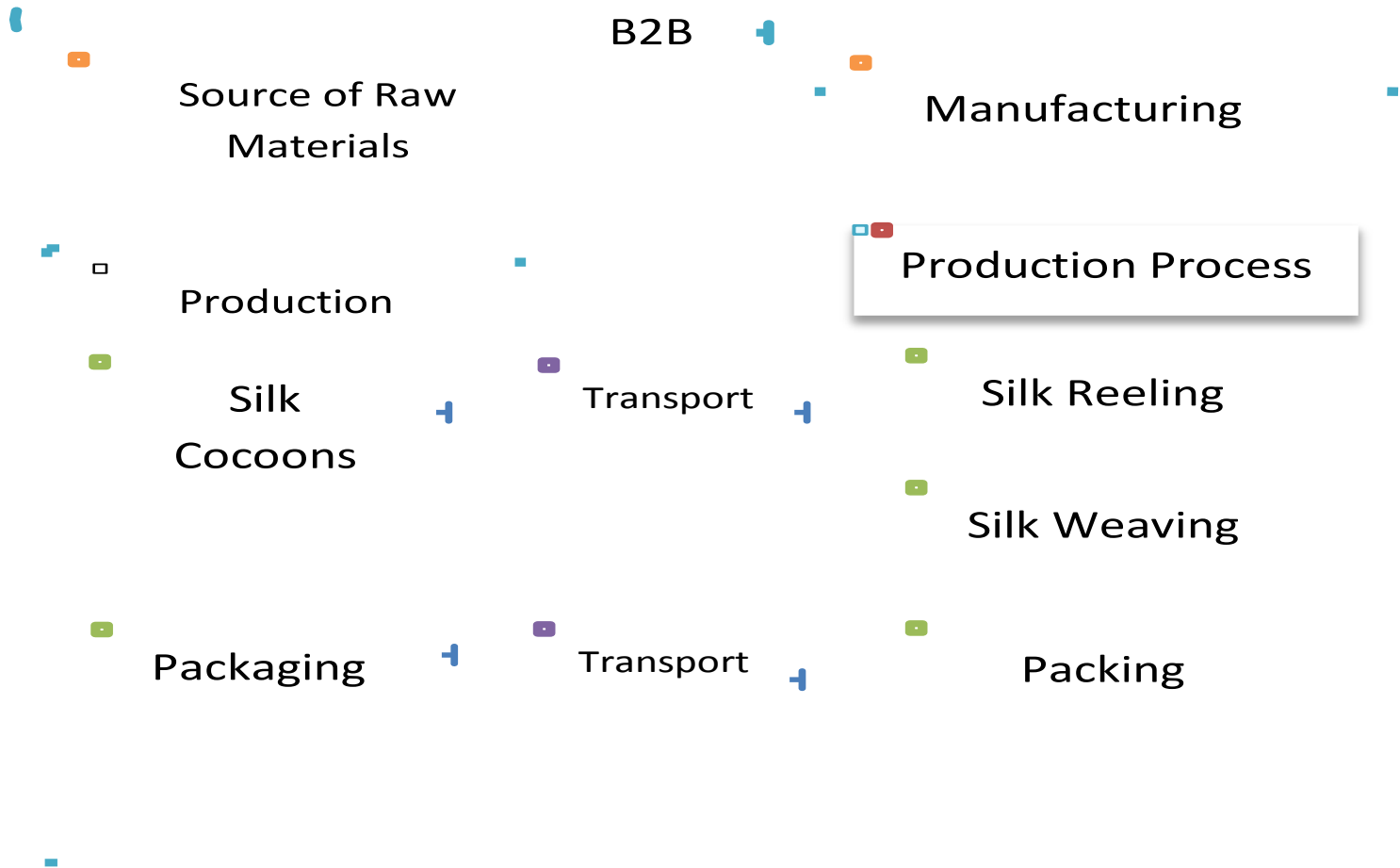


Piankusol Silk & Cotton Co., Ltd.

- 100% Northern Thailand Yellow Cocoons Silk Yarn Hand Woven Fabrics
- No dyeing
- Fabric density 0.001 /cm²
- Functional unit : 1 x 1 m (0.08 kg)



Scope of B2B carbon footprint





The Analysis of The Carbon Footprint in The Process of Silk Yarn Production in Thailand

Total GHG Emissions

1 kg. of Mulberry production



1.05 KgCO₂e.

1 kg. of Cocoon production



6.17 KgCO₂e.

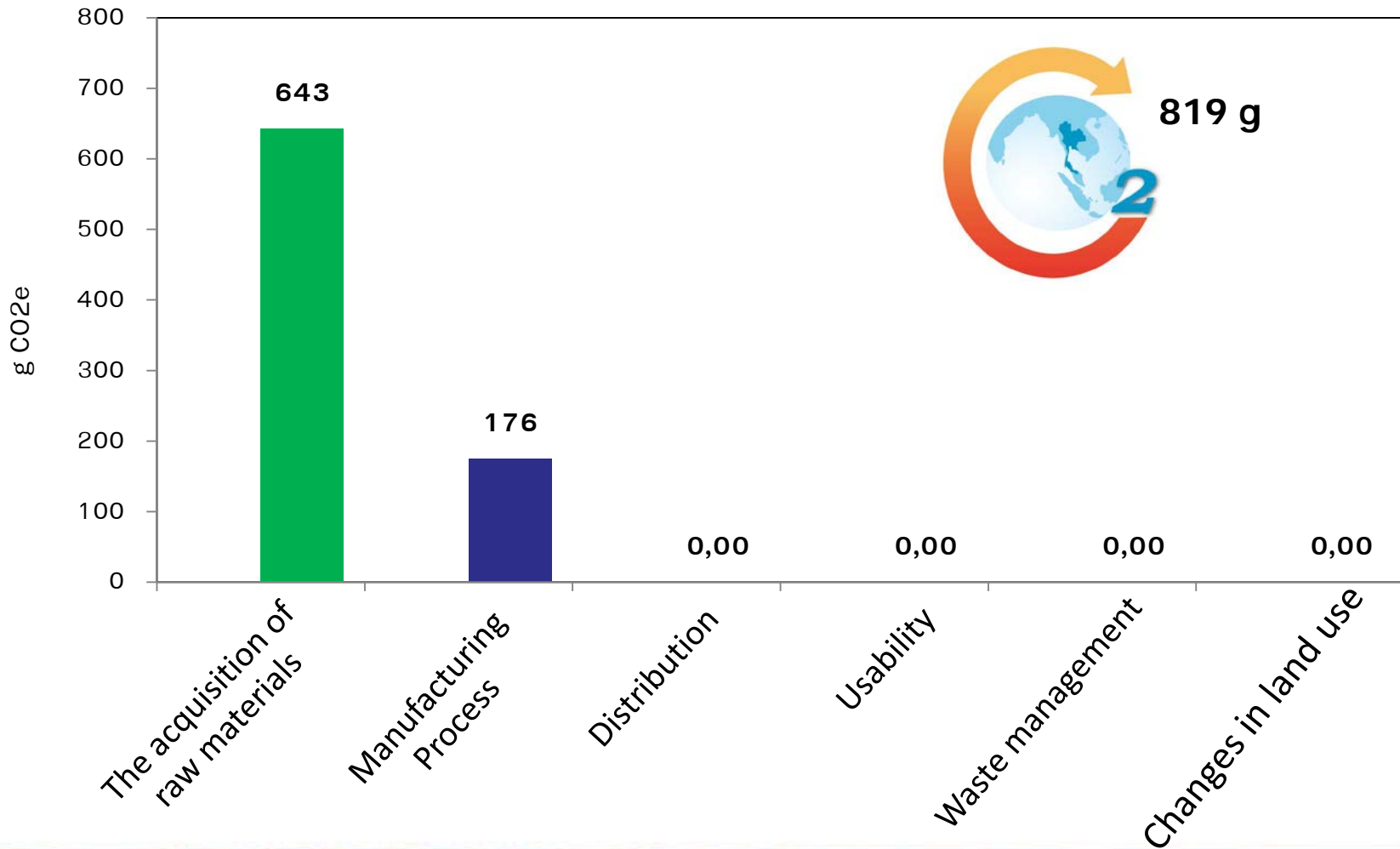
1 kg. of Silk yarn production
(degumming silk)



13.53 KgCO₂e.



Assessment Carbon footprint of Hand Woven Silk Fabrics





Natural Dyed Silk Shawl

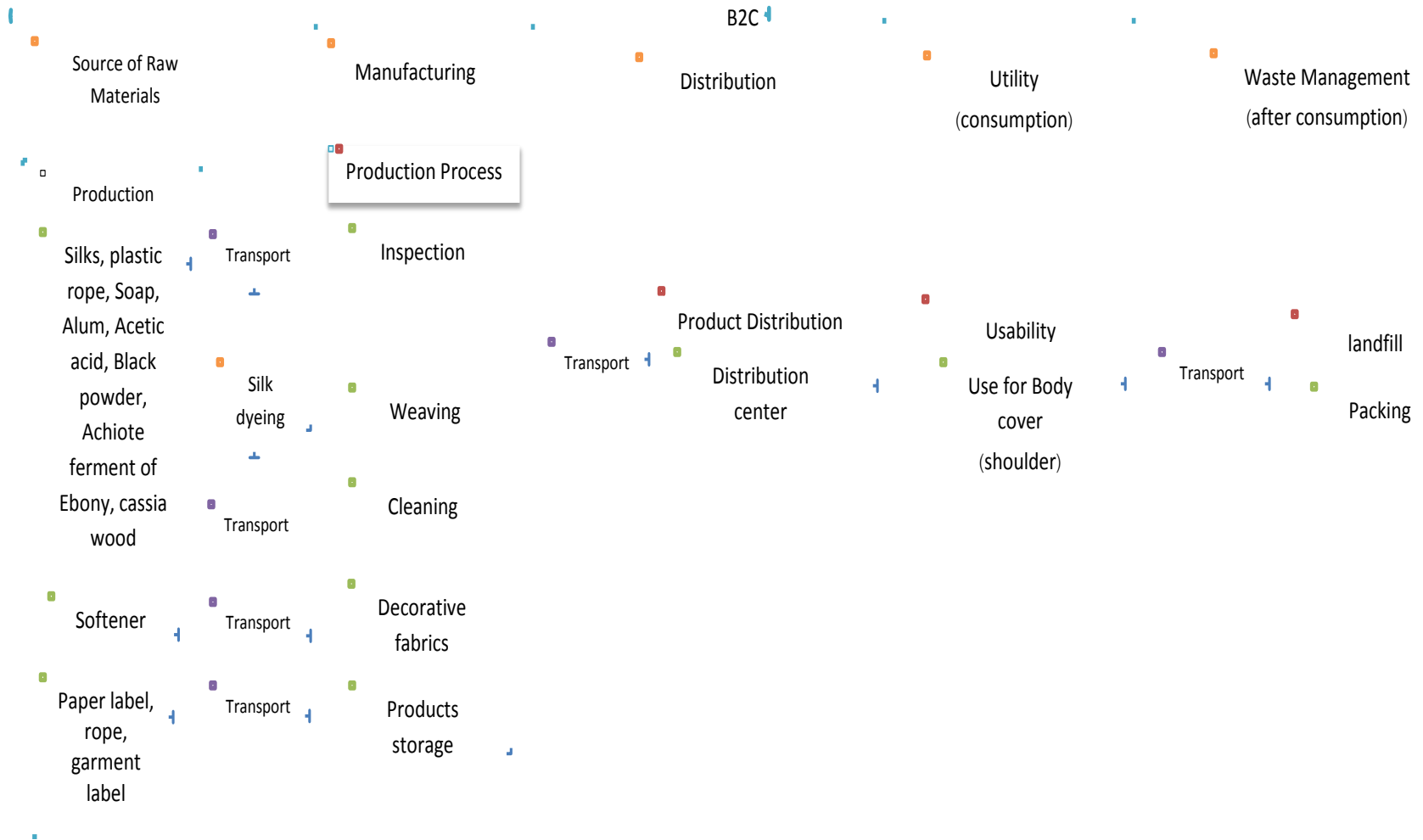


Studio-naenna Co., Ltd.

- Hand woven Thai Silk
- Dyeing : 3 Natural dyes “Ikat”
(Cassia, Annatto and Ebony)
- Fabric density 0.007 g/cm²
- Functional unit : 102 × 200 cm.

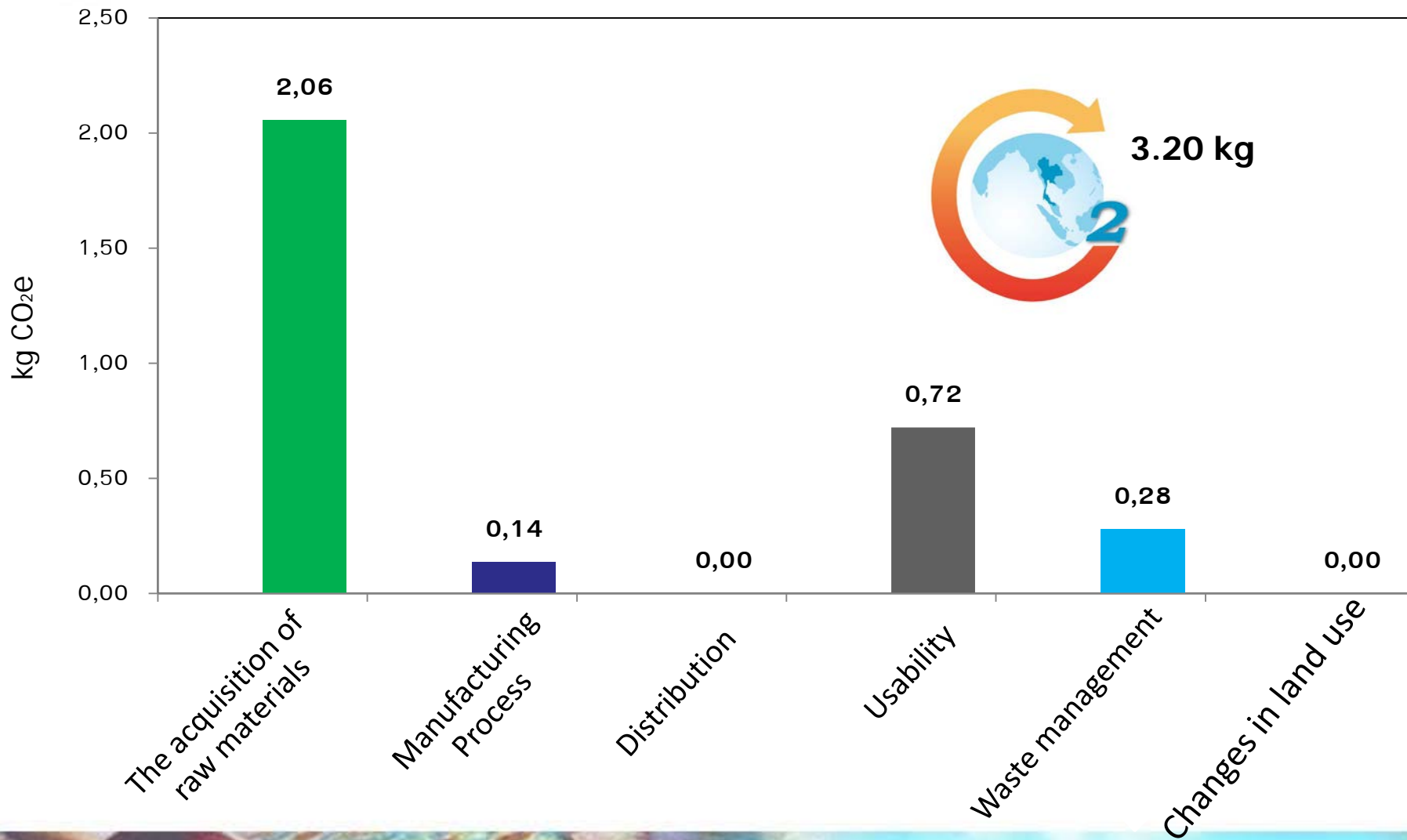


Scope of B2C carbon footprint





Assessment Carbon footprint of Silk Shawl





Silk Pocket Square (no dyeing)

Shina Watra Thaisilk Co., Ltd.

- 100% Thai silk
- No dyeing
- Fabric density 0.012 g/cm²
- Functional unit :30 x 30 cm



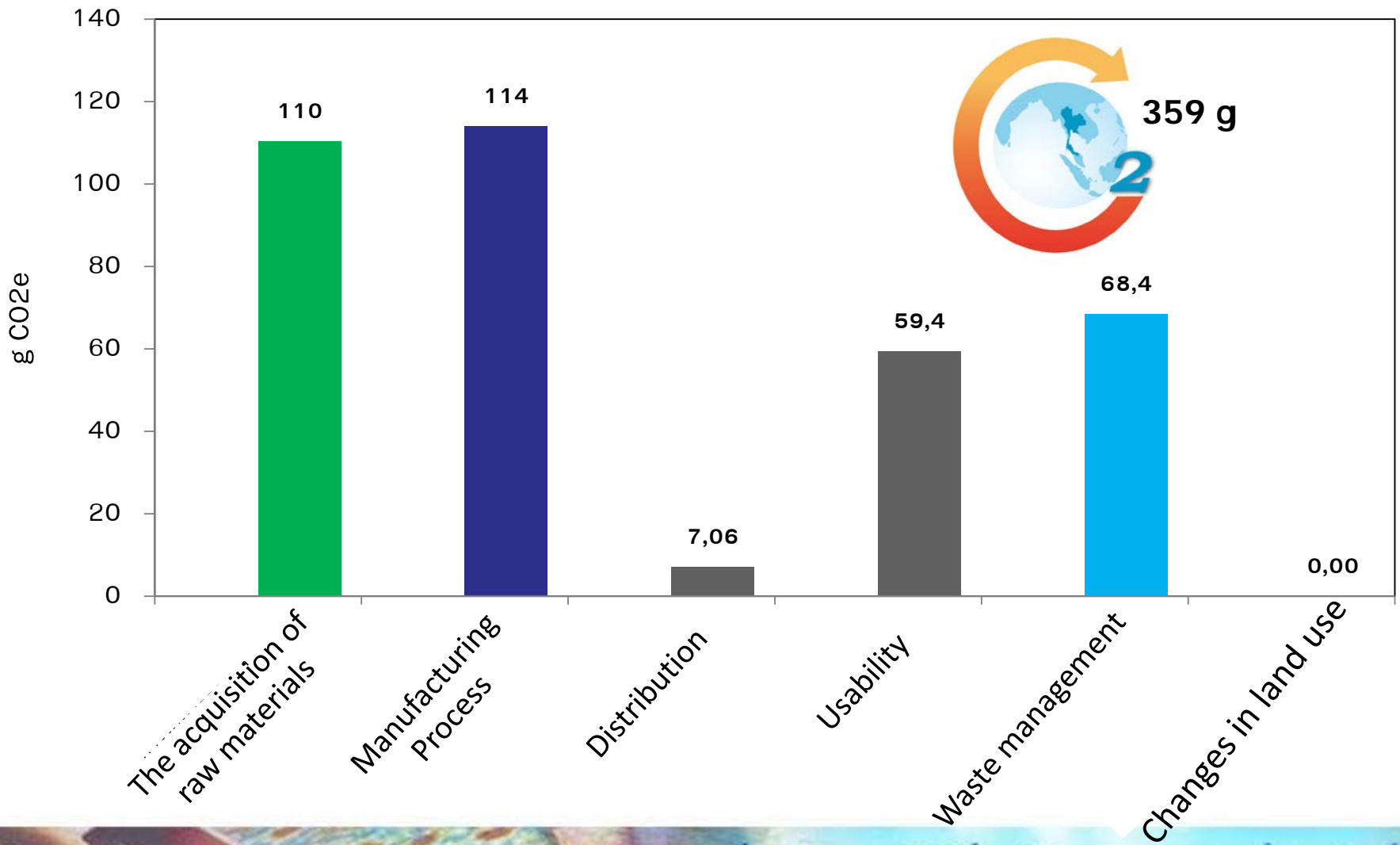


Scope of B2C carbon footprint








Assessment Carbon footprint of Silk Pocket Square





Product Comparison

Product Comparison	Detail
- Hand Woven Fabrics silk natural color Functional Unit: one piece : 1x1 m	Fabric density : 0.001 g/cm ² Silk warp 12 yarn/inch ² Silk line 20 yarn/inch ² CFP : 819 gCO ₂ e 
- Natural Dyed Silk Shawl Functional Unit: one piece : 102 x 200 cm.	Fabric density : 0.007 g/cm ² Silk warp 80 yarn/inch ² Silk line 64 yarn/inch ² CFP : 3.20 kgCO ₂ e 
- Silk Pocket Square Functional Unit: one piece : 30 x 30 cm.	Fabric density : 0.012 g/cm ² Silk warp 98 yarn/inch ² Silk line 65 yarn/inch ² CFP : 359 gCO ₂ e 



Suggestion

- GHG Emissions can be reduced in the production of Thai silk in the process of
 - ✓ silkworm breeding
 - ✓ silk reeling
 - ✓ silk degumming
 - ✓ energy efficiency improvement.



**Thank You
for
your attention**

