QUESTIONNAIRE TO CHARACTERIZE PRODUCTIVE ACTIVITIES AND THE USE OF PLASTICS IN THE TECOLUTLA RIVER BASIN, VERACRUZ, MEXICO

SOCIOECONOMIC DIMENSION

I. GENERAL INFORMATION

PLEASE WRITE IN LEGIBLE CAPITAL LETTERS

1. Company name: _____

2. State:

( ) Tlaxcala
( ) Hidalgo
( ) Puebla
( ) Veracruz

3. Municipality: _____

4. City: _____

5. Geographic coordinates
(e.g., 20.54131° N, 97.44899° W):

_____

6. Company size:

( ) Small (11–50 employees)
( ) Medium (50–250 employees)
( ) Large (250+ employees)

7. Turnover: _____ **( ) units produced ( ) monetary**

II. INFORMATION REGARDING THE ECONOMIC SECTOR

8. Economic sector to which the company belongs:

( ) Primary ( ) Secondary ( ) Tertiary

9. Based on the primary economic sector, identify the company's economic activity:

( ) Agriculture
( ) Livestock
( ) Agriculture and livestock
( ) Forestry

10. Based on the secondary economic sector, identify the company's economic activity:

( ) Mining
( ) Generation, transmission, and distribution of electricity, water, and gas supply via pipelines to the end consumer
( ) Construction
( ) Manufacturing

12. Select the industry based on economic activity:
Mining
( ) Oil and gas extraction
( ) Mineral mining
( ) Oil and gas well drilling

13. Select the business category based on the economic activity:
Construction
( ) Residential construction
( ) Civil engineering construction
( ) Specialized construction work

11. Based on the tertiary economic sector, identify the company's economic activity:

( ) Trade
( ) Transportation, postal services, and warehousing
( ) Mass media
( ) Financial and insurance services
( ) Real estate and rental services, movable and intangible property
( ) Business support services, waste management, and remediation services
( ) Temporary accommodation and food and beverage preparation services

II. DATA RELATING TO THE ECONOMIC SECTOR		
	14. Select the industry based on economic activity: **Manufacturing** ( ) Food industry ( ) Beverage industry ( ) Manufacture of textile materials and textile finishing ( ) Manufacture of clothing ( ) Leather goods manufacturing ( ) Plastics and rubber industry	
15. Attach photographic evidence of the company		

III. INFORMATION REGARDING INPUTS

16. Do you use any type of polymer in your inputs?

( ) Yes
( ) No

17. If you use any, what type of polymer do your materials contain? (Select the most commonly used one)

( ) Thermoplastics (flexible, malleable, such as plastic tubing)
( ) Thermosets (resins, ceramics, plastics, heat-resistant like containers)
( ) Elastomers (difficult to melt, do not deform, such as rubber bands, rubber)

18. Are the instruments and/or tools used in your main process made of any of the following materials? (e.g., scissors, tape measure, cutters, etc.)

Select up to 2 options

☐ Thermoplastics (flexible, malleable, such as plastic tubes)
☐ Thermosets (resins, ceramics, heat-resistant plastics such as containers)
☐ Elastomers (difficult to melt, do not deform, such as rubber bands and rubber)
☐ Metals
☐ Wood
☐ Others _____

19. In the main process, how would you classify the machinery you use?

Select up to 2 options

( ) Industrial electric
( ) Industrial hydraulic
( ) Thermal
( ) Industrial with robotic arm
( ) Handcrafted
( ) Other _____

20. Based on how they operate, how would you classify the machinery used in your main process?

( ) Automatic
( ) Semi-automatic
( ) Manual

21. What material is the machinery you primarily use in your production processes made of?

Select up to 2 options

( ) Metal
( ) Plastic
( ) Wood
( ) Fibers
( ) Other _____

22. Is any type of plastic material used in the final or finished product?

( ) Yes
( ) No

23. If any plastic material is used in the final or finished product, select the classification to which that material belongs:

( ) Thermoplastic (flexible, malleable, such as plastic tubing)
( ) Thermosetting (resins, ceramics, plastics, heat-resistant materials such as containers)
( ) Elastomers (difficult to melt, do not deform, such as rubber bands, rubber)

24. If thermoplastics (flexible, malleable, like plastic tubing**) are used in the final product, choose the two most commonly used:**

( ) Polyacrylonitrile
( ) PVC
( ) Polystyrene
( ) Polyethylene
( ) Polypropylene
( ) PET

25. If thermosets (resins, ceramics, heat-resistant plastics such as containers**) are used in the final product, select the two most commonly used:**

( ) Nylon
( ) Polyamide
( ) Epoxy resins
( ) Polyester
( ) Polyurethanes

26. If elastomers (difficult to melt, do not deform, such as rubber bands, rubber**) are used in the final product, select the most commonly used one:**

( ) Natural rubber
( ) Synthetic rubber

IV. INFORMATION REGARDING THE PROCESS AND FINAL PRODUCT			
27. Are synthetic fibers used in the production of your textiles? ( ) Yes ( ) No	**28. If you use any type of synthetic fiber, select the fiber you use most often:** ( ) Polyester ( ) Nylon ( ) Acrylic ( ) Rayon ( ) Other _____	**29. Do you use any type of cutting in your production process?** ( ) Yes ( ) No	**30. If you do use any type of cutting, what kind of machinery do you use in that stage or process?** ( ) Manual blades ( ) Electric shears ( ) Industrial shears ( ) Laser cutters ( ) Other _____
31. Is any type of washing used in your textile process? ( ) Yes ( ) No	**32. If any type of washing is used, Does the machinery used for this process or stage contain a filter for plastic textile fibers?** ( ) Yes ( ) No	**33. What usually happens to the waste or residues generated at the end of any of your processes?** ( ) It is discarded ( ) It is recycled ( ) It is reused ( ) Other _____	**34. What type of container is used to transport, handle, or store your goods or final product?** *Select up to 2 options* ( ) Plastic container (polyethylene, polypropylene) ( ) Metal container (steel, aluminum) ( ) Wooden container (boxes, pallets) ( ) Cardboard containers (boxes, bags) ( ) Flexible containers (bags, sacks) ( ) Specialized containers (for liquids, gases, special products)
35. What types of crops do you primarily produce? *Select up to 2* ( ) Food crops (corn, legumes, potatoes, etc.) ( ) Forage crops (barley, sugar beets, hay) ( ) Textile crops (hemp, flax, cotton) ( ) Oilseed crops (production of industrial or edible oils) ( ) Ornamental crops (for home decoration such as shrubs, gardens, etc.) ( ) Industrial crops (for industrial manufacturing, such as rubber, etc.)	**36. Is any type of plastic used to protect your crops?** ( ) Yes ( ) No	**37. If you use any type of plastic protection for your crops, select the one used most frequently:** *Indicate a maximum of 2* ( ) Inorganic mulch ( ) Covers ( ) Plastic bottles ( ) Greenhouse films ( ) Other _____	**38. Which of these technologies, machines, and/or tools do you use to grow your crops?** *Select up to 2* ( ) Hand tools ( ) Planting machines ( ) Tractors ( ) Electronic or mechanical equipment ( ) Other _____

Textil

Agriculture

IV. INFORMATION REGARDING THE PROCESS AND FINAL PRODUCT

Agriculture

39. Do you use any fertilizers or herbicides on your crops?

( ) Yes
( ) No

40. Depending on the fertilizers or herbicides you use, what happens to the packaging or containers of those fertilizers after they are used up?

( )They are recycled
( ) They are reused
( ) They are disposed of in a trash bin
( ) They are burned
( ) Other _____

41. From the list below, select the equipment used to transport your goods or products:

( ) Manual
( ) Electric conveyors
( ) Ground vehicles
( ) Cranes
( ) Other _____

42. What type of container is used to transport, handle, or store your goods or final product?
Select up to 2

( ) Plastic container (polyethylene, polypropylene)
( ) Metal container (steel, aluminum)
( ) Wooden container (boxes, pallets)
( ) Cardboard containers (boxes, bags)
( ) Flexible containers (bags, sacks)
( ) Specialized containers (for liquids, gases, special products)

Fishin

43. Indicate the location or body of water where your main activity takes place:

( ) Dam
( ) Pond
( ) River
( ) Lake or lagoon
( ) Coast
( ) Open ocean
( ) Other _____

44. What tools and instruments do you use to carry out your main activity? *From the following list, check the box*

( ) Rods
( ) Reels
( ) Fishing nets
( ) Artificial lures
( ) Hooks
( ) Marine traps
( ) All of the above

45. Of the selected tools and instruments, what material are they mostly made of?

( ) Nylon
( ) Kuralon
( ) Synthetic fiber
( ) Polyester
( ) Wood
( ) Plastic thread
( ) Other _____

46. In addition to ghost nets or broken nets, which of the following actions do you take to protect marine life?

( ) They collect nets lost in the water
( ) They repair the nets
( ) Recycle the nets
( ) Use the nets for other activities
( ) None
( ) Other _____

47. What type of paint or coating do you use on the surfaces of your marine transport vessels (boats, ships)?

( ) Fiberglass
( ) Chlorinated rubber
( ) Polyurethane paint
( ) Bituminous
( ) Antifouling paint
( ) Epoxy resin
( ) Other _____

48. What products do you mainly use to contain waste?
Select up to 2 options

( ) Plastic bags
( ) Polypropylene bags
( ) Cloth bags
( ) Cardboard or wooden boxes
( ) Metal containers
( ) Other _____

49. What type of container is used to transport, handle, or store your goods or finished product?

( ) Plastic container (polyethylene, polypropylene)
( ) Metal container (steel, aluminum)
( ) Wooden container (boxes, pallets)
( ) Cardboard containers (boxes, bags)
( ) Flexible containers (bags, sacks)
( ) Specialized containers (for liquids, gases, special products)

IV. INFORMATION REGARDING THE PROCESS AND FINAL PRODUCT				
Accommodation and food preparation services	**50. From the following list, check which supplies you use most frequently to clean your facilities:** ( ) Microfiber cloths ( ) Plastic brooms ( ) Sponges ( ) Brushes ( ) Scouring pads (microfiber) ( ) All ( ) Others _____	**51. Select the material of the container or packaging of the supplies used in the main process:** *Indicate a maximum of 2* ( ) Natural origin ( ) Metal ( ) Fiberglass ( ) Polyester ( ) Wood ( ) Nylon ( ) Other _____	**How do you manage waste separation?** ( ) Organic and inorganic ( ) All waste together ( ) They hire an outside organization ( ) Other _____	**52. What policies do you implement to reduce the use of single-use plastics?** ( ) They use reusable containers ( ) They use disposable containers ( ) They use containers or supplies made from organic materials (wood, paper, etc.) ( ) They do not have any plastic reduction policy ( ) Other _____
	53. They use any of the following machinery for recycling their waste: ( ) Compactor presses ( ) Shredders ( ) Shredder ( ) Reverse compactors ( ) None ( ) Other _____	**54. What products do you mainly use to contain waste?** Select up to 2 options ( ) Plastic bags ( ) Polypropylene sacks ( ) Cloth sacks ( ) Cardboard or wooden boxes ( ) Metal containers ( ) Other _____	**55. What type of material are the utensils (spoon, fork, cutlery) that customers use to eat their food made of?** ( ) Metal ( ) Plastic ( ) Wood ( ) Ceramic ( ) Other _____	
Mining	**56. Indicate the main area where your extraction processes take place:** ( ) Mountain ( ) Riverbed ( ) Hillside ( ) River ( ) Coast ( ) Other _____	**57. From the list below, select up to two materials from which your tool or work equipment is made, which you use daily:** ( ) PVC ( ) Metal ( ) Synthetic fiber ( ) Polyester ( ) Wood ( ) Other _____	**58. Do employees use personal protective equipment?** ( ) Yes ( ) No	**59. What materials is your personal protective equipment made of?** *Check up to 2 boxes* ()Polyethylene ()Polyurethane ( ) PVC ( ) Rubber ( ) Cotton ( ) Other _____

IV. INFORMATION REGARDING THE PROCESS AND FINAL PRODUCT				
Mining	**60. Do you use plastic explosives in your mining processes for resource extraction?** ( ) Yes ( ) No	**61. What measures do you take to minimize the generation of plastic waste during the repair and maintenance of equipment or machinery?** ( ) Reuse containers ( ) Store waste ( ) None ( ) Other _____	**62. Where is the plastic waste generated from the consumption of food or products necessary for workers sent?** ( ) Containers ( ) Outdoor pit (dump) ( ) Collection centers ( ) Disposed of outside ( ) Other _____	
Construction	**63. From the following list, select the product or products most commonly used on your construction sites:** *Select up to 2 boxes* ( ) Waterproofing ( ) Cable ( ) Silicones and adhesives ( ) Sponges ( ) Other _____	**64. What type of material are the tools used for construction on your projects made of?** ( ) Polymers ( ) Metals ( ) Wood ( ) Other _____	**65. Do you use molds or ducts in your projects?** ( ) Yes ( ) No	**66. If you use molds or ducts, select the material from which the mold or duct used in your projects is made:** *Check a maximum of 2 boxes* ( ) Glass-fiber-reinforced polyester (GFRP) ( ) Polyvinyl chloride (PVC) ( ) Chlorinated polyvinyl chloride (CPVC) ( ) Polypropylene ( ) Stainless steel ( ) Other _____
	67. From the list below, select the main machinery used for your construction projects: ( ) Mixers ( ) Crushers ( ) Excavators ( ) Demolition equipment ( ) Other _____	**68. How do you manage waste separation?** ( ) Each waste stream separately ( ) All waste together ( ) You hire an external organization ( ) Other _____	**69. Which products do you mainly use to contain waste?** Select up to 2 options ( ) Plastic bags ( ) Polypropylene sacks ( ) Cloth sacks ( ) Cardboard or wooden boxes ( ) Metal containers ( ) Other _____	**70. What percentage of plastic waste do your projects generate, approximately:** ( ) 10% ( ) 10–20% ( ) 20–50% ( ) 50–100%

V. INFORMATION REGARDING THE SUSTAINABLE DEVELOPMENT GOALS (SDGs) AND NATIONAL STRATEGIC PROGRAMS (PRONACES)	
72. After gathering the information, **which Sustainable Development Goal(s) do you believe the activities of this business, economic unit, or organization impact?** *Select up to 3 options* ( ) Goal 1: End poverty ( ) Goal 2: Zero Hunger ( ) Goal 3: Good Health and Well-being ( ) Goal 4: Quality Education ( ) Goal 5: Gender equality and women's empowerment ( ) Goal 6: Water and sanitation ( ) Goal 7: Energy ( ) Goal 8: Economic growth ( ) Goal 9: Infrastructure ( ) Goal 10: Reduce inequality within and among countries ( ) Goal 11: Sustainable cities ( ) Goal 12: Sustainable production and consumption ( ) Goal 13: Climate action ( ) Goal 14: Oceans ( ) Goal 15: Forests, desertification, and biodiversity ( ) Goal 16: Peace and justice ( ) Goal 17: Partnerships	73. After collecting the information**, which Sustainable Development Goal(s) do you believe the activities of this business, economic unit, or organization impact?** *Select up to 2 options* ( ) I. Health ( ) II. Water ( ) III. Education ( ) IV. Culture ( ) V. Housing ( ) VI. Food sovereignty ( ) VII. Toxic agents and polluting processes ( ) VIII. Human security ( ) IX. Socio-ecological systems ( ) X. Energy and climate change, including the energy transition.

Table S1
Summary of changes resulting from expert validation

Section/Change	Item (final version)	Description of the modification	Expert judgment
Inputs/Change	16, 17, 22, and 23	Conversion to dichotomous questions followed by sub-questions	Improve the clarity and precision of responses
Inputs / Disaggregate	16–26	Separation of plastic use in inputs, process, and final product	Enable detailed analysis of the production process
Textile / Addition	27-33	New questions regarding synthetic fibers, washing processes, and microfibers	Identify potential sources of MP
Fisheries/ Addition	43-49	Options for materials, tools, coatings, and waste management are added	Assess potential sources of aquatic contamination
Construction / Addition	64–71	Add materials, forms, and machinery	Consider potential industrial sources of PMs
General/Modification	All	Conditional questions depending on the sector.	Improve applicability by economic sector.
General/ Improve wording	All	Refine the wording.	Reduce ambiguity
Expansion	1-73	Increase in the number of items	Expand the subject coverage