Index

Clean Team Ghana, 118-119 Clean India, 214 Advocacy, 3, 6, 9-11, 203-216, 237, 239, 246, China Toilet Revolution, 215 251, 272-273 Cleaning, hygiene and disinfectant products, 49 Advocacy activities, 203-204, 210, 212, 216 Conventional sanitation services, 104 Global-level advocacy, 204 Containerised sanitation services, 104 National-level advocacy, 204 Container-based sanitation service value Grassroots-level advocacy, 204 chain, 118 Advocacy value chain, 203-204, 208, 210-213, 216 Ceramic sanitaryware, 5, 47, 59-60 Advocacy-driven-sanitation value chain, Circular economy, 120, 129-131, 163, 183, 208-209, 216 223, 248 Advocacy value chain supporting services, 212 Circular bioeconomy, 2, 7, 13, 125, 129-132, Advocacy capacity intervention, 212 155, 165, 270, 273 After sale services, 54-55 Circular bio-based value chain, 130 Alcohol-based hand sanitizer, 64-65 Circular Sanitation Economy, 7 Ancillary Services, 132, 158, 165 Creating knowledge innovations, 227 Augmented sanitation service chain, 2 Competitive advantages, 4, 128, 160 Competitiveness and efficiency, 110-111 Combustion Technology, 143 R Composting, 7, 11, 38, 47, 49, 126, 131, 137-138, Base-of-Pyramid, 208 153-156, 162-163 Black Soldier Fly, 30, 126, 154 Communication for development services, Beginning of life (BOL), 38 211-212 Bear Valley Ventures, 28-29 Customer insights, 19-20, 23-25, 34 Bill and Melinda Gates Foundation, 34, 44, 224 Communities of practice, 8, 224, 227, 229, 233, Bioresources value chains, 127 241, 247-249, 251-252, 272-273 Biomass Conversion Technologies, 141, 193 Biochemical conversion processes, 142, 153 Biological pre-treatment, 140, 153 D Buyer-driven chains, 42 Design, 2-11, 13, 19-23, 25-26, 28-29, 31-34, Business model, 3, 5, 12-13, 21, 30-33, 84-86, 38, 41-45, 47-48, 50, 52, 54, 56, 59-60, 88, 99, 107, 120, 126, 131-132, 138-139, 64, 67, 75-79, 81-90, 92, 94-96, 99, 141, 163, 183, 188, 191, 193, 196-198, 106, 113, 117, 119, 127-128, 130-132, 203, 207-208, 210, 216 144, 160, 163, 185–188, 190, 193–194, 196-198, 203-213, 216, 223, 225, 228-231, 237, 241-242, 244-248, C 250-251, 265, 269-270, 272 Chemical pre-treatment, 140, 157-158 Disposable super-absorbent hygiene products, 49 Clean Team, 23, 118-119, 196 Disruptive Innovation, 21, 56, 198

Е

Enabling business environment, 268, 270,
273–275
Ease of business registration, 271
Ease of business licensing, 271
Labour regulations, 271
Ease of property registration, 271
Credit regulations, 271
Corporate governance, 271–272
Cumbersome tax administrations, 272
Contract enforcement, 272
End-users/customers, 54
End market buyers, 3
End-of-life (EOL), 38, 131, 139
Ethnographic research, 20
Extended-enterprises, 8
Economic analysis, 13, 33, 90, 110-111, 114, 188
Environmental analysis, 13, 91, 112

F

Facility, integration, installation and construction services, 3
Fresh Life Toilet, 23–24
Faecal sludge, 2–3, 28, 32, 37, 40–42, 52, 55, 62–63, 77–78, 83–84, 90, 99, 106, 109–115, 120, 125–126, 128–129, 131, 133, 137–138, 141–154, 156, 165, 181, 183, 187, 193–194, 225–226, 235, 237, 269
Faecal sludge management, 3, 109, 120, 126,

235, 237 Faecal sludge treatment plant, 41–42, 55, 63, 77–78, 83, 90, 114–115, 138, 269 Foreign value-added, 41

G

Gasification Technology, 145, 152 Gender-inclusive toilet, 23 Global Handwashing Day, 207, 209 Global value chains (GVCs), 42, 42 Governance and enabling systems, 1, 10–11, 265, 267, 274 governance, 1, 9–11, 66, 78, 80, 87, 127, 206, 212, 225, 230, 247, 249, 251–252, 265–275 Guidelines and standards, 11, 121

н

Hand sanitizer, 3, 64–65 Healthcare/hygiene products, 49 Hydrothermal Liquefaction Technology, 149

I

Innovative DEWAT Technologies Project, 29 International Year of Sanitation, 207, 209 Institutions, 1, 7, 10-11, 37, 41, 67, 110, 114, 127-128, 185, 204, 206, 209, 212, 227-230, 233, 237, 244, 247, 265, 269-273 Institutional gaps, 1 Integrated bio-refineries, 128 Integrated functional sanitation value chain, 1-2, 4, 6, 8-9, 11, 13-14, 37, 182, 222, 267 Integrating Product Development with Market and Business Model Development, 30 Integrated-functional, 1-2, 4-6, 8-9, 11, 13-14, 37, 182, 222, 267 Input suppliers, 3 IFSVC: Revenue and value flow, market

transactions and actors, 182

K

Knowledge application, 230 Knowledge acquisition/capturing, 228 Knowledge creation and development, 229 Knowledge Evaluation, 230 Knowledge characteristics, 226 Knowledge economy, 222, 250 Knowledge-driven economy, 227 Knowledge resources, 224, 228-230, 235, 248 Knowledge intensive firms/organisations, 223 Knowledge intensive business services firms, 223, 231, 235-236 Knowledge-building, 225, 229 Knowledge Management, 6, 221, 224-225, 227-228, 230-231, 239, 241, 243, 246, 249, 272-273 Knowledge identification/sourcing, 228 Knowledge storage and retrieval, 229, 231 Knowledge dissemination, 229-231 Knowledge protection, 230, 244-245 Knowledge value chain, 221, 224, 235, 239, 241-244, 249, 253

L

lignocellulose biomass, 135, 141 LIXIL, 22–23, 196 Loowatt Ltd, 118–119

M

Manufacturing, 3-4, 9, 11, 23, 25, 27, 37-38, 41-46, 49, 52-56, 60, 62, 65, 67-68, 82, 87-89, 98, 128, 132, 194, 231, 235, 272 Index 279

Manufactured sanitation equipment and allied	Q
products, 46	Quality control, 11, 38, 43, 45, 56, 77
Market-based approach, 3, 185	Quicksand, 21, 23–24
Market System, 1, 3, 185–186, 188–192, 196–199	
Market Landscape, 183, 191	В
Market-place and sales, 9-11, 181, 198	R
Market Failures, 185, 188, 191	Rewiring AD, 33
Market System Failures along the IFSVC, 189 Market Development Innovations, 189	Regenerative Sanitation, 4, 91
Middle-of-life (MOL), 38	Research and development, 11, 37, 41, 43–44, 50, 80, 190, 233, 236–237, 240, 245,
Monitoring and evaluation, 211–213, 248	247, 250
	Research services, 211
NI.	Revenue and Value Flow, 182
N	Resource mobilization, 211–212
Nano Membrane Toilet, 23	Role of NGOs, 190 Role of Start-Ups, 192
NATS project team at AIT, 29 Need for coordination, 197	Role of Governments, 194
Non-lignocellulosic biomass, 133, 137, 140	Role of philanthropy, 196
g., , , , , , , , , ,	Role of Multi-National Corporations, 196
_	Roles of chain actors, 272 Private sanitation enterprises, 272
0	Sanitation industry, 3, 5, 75, 224, 227, 233,
On-site and/or non-sewered sanitation	235, 242, 252, 273
services, 104–105	Public and private research, include training
	institutes, 273
P	Government organizations, 273 Donor agencies and multi-lateral
Public private partnership, 193, 209, 210, 215, 247	organizations, 273
Plasma Gasification Technology, 152	
Personal hygiene products, 49	S
Physical pre-treatment, 140	J
DI : 1 : 1	
Physicochemical pre-treatment, 140, 158	Saraplast, 3S, 23
Private enterprises' sanitation service	Saraplast, 3S, 23 SATO pan, 21, 23, 196
	Saraplast, 3S, 23
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208,
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC)
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232,
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225, 227–231, 233–252, 265–267, 269,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232, 234–236, 238, 242, 244–246,
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225,	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232,
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225, 227–231, 233–252, 265–267, 269, 271–275 Project Sammaan, 21 Porter's Value Chain Model, 4, 43	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232, 234–236, 238, 242, 244–246, 250, 253 SDGs, 3, 6, 14, 60, 130, 164, 182–183, 185, 208–209, 221, 225, 250, 274
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225, 227–231, 233–252, 265–267, 269, 271–275 Project Sammaan, 21 Porter's Value Chain Model, 4, 43 Policy and regulation, 197	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy walue chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232, 234–236, 238, 242, 244–246, 250, 253 SDGs, 3, 6, 14, 60, 130, 164, 182–183, 185, 208–209, 221, 225, 250, 274 SDG 6, 3, 5, 7, 42, 54, 66, 90, 130, 203–204,
Private enterprises' sanitation service arrangement, 108 PSI's Market development approach in rural India: the 3SI project, 191 Public services' sanitation arrangement, 191 Prototyping, 21, 26–27, 34 Producer-driven-value chain, 42 Product design and development, 9, 11, 19–20, 32–34, 272 Product/Equipment Manufacturing, 37 Product, 1–13, 19–34, 37–46, 48–50, 52–56, 59–68, 75–76, 81–82, 84–86, 88–92, 94, 96–97, 99, 103–104, 106–107, 111–112, 114, 116, 118–121, 125–133, 137–143, 145–148, 150–165, 181–198, 203–204, 207–210, 212–214, 222–225, 227–231, 233–252, 265–267, 269, 271–275 Project Sammaan, 21 Porter's Value Chain Model, 4, 43	Saraplast, 3S, 23 SATO pan, 21, 23, 196 Small-scale producers (S-SP), 41, 41 Sanergy, 22–24, 30–32, 118–120, 162–163, 193 Sanergy: Business Model and Relationship to Design and Value Creation, 31 Sanitary appliances, 46–47, 97 Sanitation advocacy, 9–11, 203–204, 207–208, 210–211, 213–216, 272 Sanitation advocacy management tool, 204 Sanitation advocacy value chain, 203–204, 208, 210–211, 213, 216 Sanitation advocacy value chain (SAVC) mapping, 203, 210, 210–211, 216, 216 Sanitation-biomass recovery and conversion, 23, 125–126, 131, 133, 164–165, 270 Sanitation knowledge, 221–229, 231–232, 234–236, 238, 242, 244–246, 250, 253 SDGs, 3, 6, 14, 60, 130, 164, 182–183, 185, 208–209, 221, 225, 250, 274

service design and development, 3, 246-247 Sanitation market, 3, 5-6, 8, 20, 181-184, 186-188, 190, 192, 196-199, 231, 233-234, 274 Sanitation market status, 186, 198 Sanitation Marketplace and the IFSVC, 184 Sanitation knowledge market, 222-224, 231-232, 253 Sanitation Management Knowledge Value Chain, 221, 224, 235, 239, 241-244, 253 Sanitation Management Knowledge Marketplace, 221, 231 Sanitation Knowledge Intensive Services Activities, 234, 242 Sanitation Knowledge Intensive Firms, 253 Sanitation Knowledge Intensive Business Services Firms, 236 Sanitation Knowledge Workers, 238, 242 Sanitation Education, Research and Training, 250 Sanitation knowledge services, 223, 245 Sanitation Knowledge management, 221, 224-225, 227-228 Sanitation management knowledge, 3, 9-11, 221-222, 224-225, 231, 235, 239, 241-244, 248, 253, 272 Sanitation system, 2, 6-7, 13, 28, 41, 44, 50, 67, 76-77, 81, 84, 94, 99, 104-107, 114-115, 128-129, 131, 134, 138, 155-156, 181, 185, 250, 252 Sanitation industry, 3, 5, 75, 224, 227, 233, 235, 242, 252, 273 Sanitation economy, 2-3, 6-8, 10, 13-14, 19-20, 42, 66, 105, 183, 199, 203, 208, 222-223, 231, 238, 241-242, 251, 253, 266-267, 272, 275 Sanitaryware, 5, 38, 42-43, 46-47, 59-60, 96, 183, 187, 266, 269, 274 Sanitation Ventures team, 29 Smart Sanitation Economy, 7 Sanitation biomass recovery and conversion, 23, 125-126, 131, 133, 164-165, 270 Sanitation manufactured products and equipment, 37 Sanitation Manufacturing Value Chain, 37 - 38,68Sanitation biomass recovery and conversion value chain, 125-126, 133, 164-165, 270 Sanitation facility integration, installation and construction value chain, 75 Sanitation value chain, 1-4, 6, 8-9, 11, 13-14, 31, 37-38, 42, 99, 104, 109, 112, 118, 129, 182, 184, 204, 208-209, 213-214, 216, 222, 267, 270, 273-274 Sanitation service chain, 2-3, 14, 55, 104-106, 120, 225

Sanivation, 23–24, 193–195
Sewered sanitation service value chain, 113, 115, 118
Safely-managed sanitation, 1, 4, 7, 10, 13, 20, 42, 44, 52, 56, 60, 66, 81, 84, 107, 126, 182, 184, 187, 203, 206–208, 214, 221, 266, 268, 274
Septic system installation and integration, 79
Support markets, 3
Structural analysis, 13, 113
Social and poverty analysis, 13
Sourcing of inputs and supplies, 43, 45
Social/community mobilization services, 211
Specific advocacy approaches, 205
Sustainable Sanitation Alliance, 216

Sanitation services value chains, 103

Т

The Art of Prototyping, 26 The benefits and challenges of waste to value innovation, 194 Torrefaction Technology, 150 Toilet Board Coalition, 6, 132, 181, 183, 196, 206, 216 Towards an Ideal market, 197 Thermochemical conversion Technologies, 142 Traditional value chains, 8 Toilet economy, 6, 183 Total value added, 110-111 Types and kinds of advocacy, 205 Types of value chain governance, 268, 275 Market governance, 269 Modular governance, 269 Network governance, 269 Hierarchy, 269

U

Unbranded toilet package, 23 User-Centred Design, 21, 34, 190 Urine diverting dehydrating toilet, 78

V

Value-added activities, 2–3, 9–10, 38, 41, 49, 104, 129, 210, 250, 269

Value chain, 1–6, 8–15, 19–20, 22, 31–34, 37–38, 41–43, 45–46, 48, 52–55, 60, 62–63, 66–68, 75–76, 78–100, 103–115, 117–118, 120–121, 125–133, 139, 158, 160–162, 164–165, 182, 184, 188, 191, 203–204, 207–216, 221–224, 231, 234–235, 239, 241–244, 246, 248–249, 253, 265–275

Index 281

World Toilet Day (WTD), 206-207, 209, 209,

Waste-to-energy, 128, 147

213-214

Value chain analysis, 5, 12–13, 41, 43, 115, 121, 210, 270
value chain map, 12–13, 33, 43, 68, 78–80, 91, 99, 111, 113, 117, 130, 132, 210–211, 215–216
Ventilated improved pit latrines (VIP), 38, 50, 78, 239

X

X-Runner, 119

W

WaterSHED, 23, 26, 190–191 WaterSHED's Market Systems Approach in rural Cambodia, 190

Z

Zyclone Cube, 28-29