



**UNITED STATES – CERTAIN METHODOLOGIES AND THEIR APPLICATION
TO ANTI-DUMPING PROCEEDINGS INVOLVING CHINA**

RECOURSE TO ARTICLE 22.6 OF THE DSU BY THE UNITED STATES

DECISION BY THE ARBITRATOR

*BCI redacted, as indicated [[***]]*

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CASES CITED IN THIS DECISION

Short Title	Full Case Title and Citation
<i>Canada – Continued Suspension</i>	Appellate Body Report, <i>Canada – Continued Suspension of Obligations in the EC – Hormones Dispute</i> , WT/DS321/AB/R, adopted 14 November 2008, DSR 2008:XIV, p. 5373
<i>EC – Bananas III (Ecuador) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB/ECU , 24 March 2000, DSR 2000:V, p. 2237
<i>EC – Bananas III (US) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB , 9 April 1999, DSR 1999:II, p. 725
<i>EC – Bed Linen (Article 21.5 – India)</i>	Appellate Body Report, <i>European Communities – Anti-Dumping Duties on Imports of Cotton-Type Bed Linen from India – Recourse to Article 21.5 of the DSU by India</i> , WT/DS141/AB/RW , adopted 24 April 2003, DSR 2003:III, p. 965
<i>EC – Hormones (US) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Measures Concerning Meat and Meat Products (Hormones), Original Complaint by the United States – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS26/ARB , 12 July 1999, DSR 1999:III, p. 1105
<i>Japan – DRAMs (Korea)</i>	Appellate Body Report, <i>Japan – Countervailing Duties on Dynamic Random Access Memories from Korea</i> , WT/DS336/AB/R and Corr.1, adopted 17 December 2007, DSR 2007:VII, p. 2703
<i>US – 1916 Act (EC) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Anti-Dumping Act of 1916, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS136/ARB , 24 February 2004, DSR 2004:IX, p. 4269
<i>US – Anti-Dumping Methodologies (China)</i>	Panel Report, <i>United States – Certain Methodologies and Their Application to Anti-Dumping Proceedings Involving China</i> , WT/DS471/R and Add.1, adopted 22 May 2017, as modified by Appellate Body Report WT/DS471/AB/R, DSR 2017:IV, p. 1589
<i>US – Continued Suspension</i>	Appellate Body Report, <i>United States – Continued Suspension of Obligations in the EC – Hormones Dispute</i> , WT/DS320/AB/R , adopted 14 November 2008, DSR 2008:X, p. 3507
<i>US – COOL (Article 22.6 – US)</i>	Decisions by the Arbitrator, <i>United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS384/ARB and Add.1 / WT/DS386/ARB and Add.1, circulated to WTO Members 7 December 2015, DSR 2015:XI, p. 5877
<i>US – Countervailing and Anti-Dumping Measures (China)</i>	Appellate Body Report, <i>United States – Countervailing and Anti-Dumping Measures on Certain Products from China</i> , WT/DS449/AB/R and Corr.1, adopted 22 July 2014, DSR 2014:VIII, p. 3027
<i>US – Anti-Dumping Methodologies (China) (Article 21.3(c))</i>	Award of the Arbitrator, <i>United States – Certain Methodologies and Their Application to Anti-Dumping Proceedings Involving China – Arbitration under Article 21.3(c) of the DSU</i> , WT/DS471/RPT , 19 January 2018
<i>US – Gambling (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS285/ARB , 21 December 2007, DSR 2007:X, p. 4163
<i>US – Hot-Rolled Steel</i>	Appellate Body Report, <i>United States – Anti-Dumping Measures on Certain Hot-Rolled Steel Products from Japan</i> , WT/DS184/AB/R , adopted 23 August 2001, DSR 2001:X, p. 4697
<i>US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by Brazil – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/BRA , 31 August 2004, DSR 2004:IX, p. 4341
<i>US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by Brazil – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/BRA , 31 August 2004, DSR 2004:IX, p. 4341
<i>US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/ECC , 31 August 2004, DSR 2004:IX, p. 4591

Short Title	Full Case Title and Citation
<i>US – Stainless Steel (Mexico)</i>	Appellate Body Report, <i>United States – Final Anti-Dumping Measures on Stainless Steel from Mexico</i> , WT/DS344/AB/R , adopted 20 May 2008, DSR 2008:II, p. 513
<i>US – Tuna II (Mexico) (Article 21.5 – Mexico)</i>	Appellate Body Report, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 21.5 of the DSU by Mexico</i> , WT/DS381/AB/RW and Add.1, adopted 3 December 2015, DSR 2015:X, p. 5133
<i>US – Tuna II (Mexico) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS381/ARB , 25 April 2017, DSR 2017:VIII, p. 4129
<i>US – Upland Cotton (Article 22.6 – US I)</i>	Decision by the Arbitrator, <i>United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS267/ARB/1 , 31 August 2009, DSR 2009:IX, p. 3871
<i>US – Washing Machines</i>	Appellate Body Report, <i>United States – Anti-Dumping and Countervailing Measures on Large Residential Washers from Korea</i> , WT/DS464/AB/R and Add.1, adopted 26 September 2016, DSR 2016:V, p. 2275
<i>US – Washing Machines (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Anti-Dumping and Countervailing Measures on Large Residential Washers from Korea – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS464/ARB and Add.1, 8 February 2019
<i>US – Zeroing (Japan)</i>	Appellate Body Report, <i>United States – Measures Relating to Zeroing and Sunset Reviews</i> , WT/DS322/AB/R , adopted 23 January 2007, DSR 2007:I, p. 3

MAIN EXHIBITS REFERRED TO IN THIS DECISION

Exhibit	Title
Exhibit CHN-5	Difference in Difference Estimates (HS10) for 13 "As Applied" Cases
Exhibit CHN-13	Difference in Difference Estimates (HS10) for 12 "As Such" Examples
Exhibit CHN-21	China's Revised Estimates of Nullification or Impairment
Exhibit CHN-31 (BCI)	Economic Discussion of Technical Issues Concerning the Armington Model Used by the United States
Exhibit CHN-48	China's Adjusted Estimates of Nullification or Impairment to Take into Account Changing Anti-Dumping Duty Rates
Exhibit CHN-49 (BCI)	China's Adjusted Estimates of Nullification or Impairment to Take into Account Only PRC-Wide Entity Exports
Exhibit CHN-53	China's Identification of Suitable Benchmarks for All Other Anti-Dumping Duty Rates
Exhibit CHN-55 (BCI)	Data Required for Implementing the Armington Model Under Two Steps
Exhibit CHN-56 (BCI)	Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps
Exhibit USA-5	Table of Relevant Anti-Dumping Duty Rates
Exhibit USA-7	<i>High Pressure Steel Cylinders From the People's Republic of China</i> : Notice of Court Decision Not in Harmony With Final Determination in Less Than Fair Value Investigation, Notice of Amended Final Determination Pursuant to Court Decision, Notice of Revocation of Antidumping Duty Order in Part, and Discontinuation of Fifth Antidumping Duty Administrative Review, 82 Fed. Reg. 46,758 (6 October 2017)
Exhibit USA-13 (BCI)	Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC
Exhibit USA-15	R. Hallren and D. Riker, <i>An Introduction to Partial Equilibrium Modeling of Trade Policy</i> , Economics Working Paper Series (Working Paper 2017-07-B), USITC (July 2017)
Exhibit USA-16	Table of Elasticities
Exhibit USA-19	Code and Text Version of the United States' Proposed Armington Model
Exhibit USA-20	Presentation of Difference-in-Difference Estimation, Columbia University
Exhibit USA-21 (BCI)	Table of US Customs Data on US Imports from China
Exhibit USA-23	J. Angrist, J. David, and J. Pischke, <i>Mostly Harmless Econometrics: An Empiricist's Companion</i> , (Princeton University Press, 2009)
Exhibit USA-30 (BCI)	Updated Table of US Customs Data on US Imports from China
Exhibit USA-31 (BCI)	Revised Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC (Revised Exhibit USA-13)
Exhibit USA-50	US Federal Register Notices Regarding Final Determinations in Anti-Dumping Duty Investigations
Exhibit USA-51	US Federal Register Notices Regarding Preliminary Determinations in Anti-Dumping Duty Investigations
Exhibit USA-52 (BCI)	Tables Presenting Armington Model with Import Supply Elasticity at 10, Inputs for the Armington Model, Armington Model with Import Supply Elasticity Equal to US Domestic Supply Elasticity, and Armington Model with Infinite Import Supply Elasticity
Exhibit USA-54 (BCI)	Calculated Maximum Share Covered by the PRC-Wide Entity
Exhibit USA-55	Information on Response Rate to USDOC Q&V Questionnaire in Anti-Dumping Duty Investigations
Exhibit USA-56 (BCI) (revised)	Tables of the Maximum Share of the PRC-Wide Entity and Non-Response Rate
Exhibit USA-57	Table of US Imports from China, World, and Rest of the World in Selected Years
Exhibit USA-58	Calculations on US Shipments
Exhibit USA-67	D. Riker, <i>Multinational Production and Employment in an Industry-Specific Model of Trade</i> , Economics Working Paper Series (Working Paper 2018-08-C), USITC (August 2018)
Exhibit USA-68	Paul S. Armington, <i>A Theory of Demand for Products Distinguished by Place of Production</i> , Vol. 1, No.1, International Monetary Fund (March 1969)
Exhibit USA-77 (BCI)	Anti-Dumping Duty Rates Assigned by the USDOC to Chinese Firms Subject to Anti-Dumping Duties
Exhibit USA-79	Table of Anti-Dumping Duty Rates for Certain Anti-Dumping Duty Orders and US Federal Register Notices Regarding Certain Anti-Dumping Duty Orders
Exhibit USA-86	Approach for Estimating the Maximum Share of the PRC-Wide Entity
Exhibit USA-92 (BCI)	Excel File with Simple Average of Duty Rates for Chinese Exporters Outside the PRC-Wide Entity
Exhibit USA-94 (BCI) (revised)	Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties

OTHER DOCUMENTS REFERRED TO IN THIS DECISION

Title
A. Abadie, "Semiparametric Difference-in-Differences Estimators" (2005), Vol. 72, No. 1, <i>The Review of Economic Studies</i>
B. Callaway and P. Sant'Anna, "Difference-in-differences with multiple time periods", Working Paper (2019)
D. Rubin, "Assignment to Treatment Group on the Basis of a Covariate" (1977), Vol. 2, No. 1, <i>Journal of Educational Statistics</i>
G. Philippidis, H. Resano-Ezcaray, A.I. Sanjuán-López. "Shifting Armington Trade Preferences: A re-examination of the Mercosur-EU negotiations" (2014), No. 40. <i>Economic Modelling</i>
M. Kuiper and F. van Tongeren, "Using gravity to move Armington" (2006), Paper prepared for the Ninth Annual Conference on Global Economic Analysis in Addis Ababa, Ethiopia
M. Lechner, "The estimation of causal effects by difference-in-difference methods" (2011), Vol. 4, No. 3, <i>Foundations and Trends in Econometrics</i>

ABBREVIATIONS USED IN THIS DECISION

Abbreviation	Description
AHAM	Association of Home Appliance Manufacturers
<i>Aluminum Extrusions</i>	Aluminum Extrusions From the People's Republic of China (A-570-967)
Anti-Dumping Agreement	Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994
APP-China	Gold East Paper (Jiangsu) Co., Ltd., Gold Huasheng Paper Co., Ltd., Gold East (Hong Kong) Trading Co., Ltd., Ningbo Zhonghua Paper Co., Ltd., Ningbo Asia Pulp and Paper Co., Ltd.
Armington model	Armington imperfect substitutes partial equilibrium model
<i>Bags</i>	Polyethylene Retail Carrier Bags From the People's Republic of China (A-570-886)
BCI	Business confidential information
BTIC	Beijing Tianhai Industry Co. Ltd
Chengde Group	Jiangsu Chengde Steel Tube Share Co., Ltd. (Jiangsu Chengde), Taizhou Chengde Steel Tube Co., Ltd. (Taizhou Chengde), and Yangzhou Chengde Steel Tube Co., Ltd. (Yangzhou Chengde)
<i>Coated Paper</i>	Certain Coated Paper Suitable for High-Quality Print Graphics Using Sheet-Fed Presses From the People's Republic of China (A-570-958)
<i>Copper Pipe and Tube</i>	Seamless Refined Copper Pipe and Tube From the People's Republic of China (A-570-964)
<i>Diamond Sawblades</i>	Diamond Sawblades and Parts Thereof from the People's Republic of China (A-570-900)
DID	Difference-in-difference
DSB	Dispute Settlement Body
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes
Formula-based approach	Formula-based approach on market shares
<i>Furniture</i>	Wooden Bedroom Furniture From the People's Republic of China (A-570-890)
GATT 1994	General Agreement on Tariffs and Trade 1994
GDP	Gross domestic product
HS	Harmonized System
HTS	Harmonized Tariff Schedule
<i>Iron Pipe Fittings</i>	Non-Malleable Cast Iron Pipe Fittings from the People's Republic of China (A-570-875)
OCTG	Certain Oil Country Tubular Goods from the People's Republic of China (A-570-943)
<i>OTR Tires</i>	Certain New Pneumatic Off-The-Road Tires from the People's Republic of China (A-570-912)
<i>Passenger Vehicle and Light Truck Tires</i>	Certain Passenger Vehicle and Light Truck Tires from the People's Republic of China (A-570-016)
PRC	People's Republic of China
<i>PET Film</i>	Polyethylene Terephthalate Film, Sheet, and Strip from the People's Republic of China (A-570-924)
Q&V	Quantity and value
<i>Ribbons</i>	Narrow Woven Ribbons With Woven Selvedge From the People's Republic of China (A-570-952)
<i>Sheet and Strip</i>	Stainless Steel Sheet and Strip from the People's Republic of China (A-570-042)
<i>Shrimp</i>	Certain Frozen Warmwater Shrimp From the People's Republic of China (A-570-893)
<i>Solar Panels</i>	Crystalline Silicon Photovoltaic Cells; Whether or Not Assembled into Modules; from the People's Republic of China (A-570-979)
<i>Steel Cylinders</i>	High Pressure Steel Cylinders From the People's Republic of China (A-570-977)
<i>Steel Flat Product</i>	Certain Cold Rolled Steel Flat Products from the People's Republic of China (A-570-029)
<i>Steel Nails</i>	Certain Steel Nails from the People's Republic of China (A-570-909)
<i>Steel Line Pipe</i>	Certain Circular Welded Carbon Quality Steel Line Pipe from the People's Republic of China (A-570-935)
<i>Steel Pipe</i>	Circular Welded Carbon Quality Steel Pipe from the People's Republic of China (A-570-910)
<i>Steel Products</i>	Certain Corrosion-Resistant Steel Products from the People's Republic of China (A-570-026)
<i>Steel Standard, Line, and Pressure Pipe</i>	Certain Seamless Carbon and Alloy Steel Standard Line and Pressure Pipe from the People's Republic of China (A-570-956)
<i>Steel Wire Rod</i>	Carbon and Certain Alloy Steel Wire Rod from the People's Republic of China (A-570-012)
TPCO	Tianjin Pipe (Group) Co.

Abbreviation	Description
USD	United States dollar
USDOC	United States Department of Commerce
USITC	US International Trade Commission
Vienna Convention	Vienna Convention on the Law of Treaties, Done at Vienna, 23 May 1969, 1155 UNTS 331; 8 International Legal Materials 679
WA-WA	Weighted average-to-weighted average
WA-T	Weighted average-to-transaction
<i>Residential Washers</i>	Large Residential Washers from the People's Republic of China (A-570-033)
<i>Wood Flooring</i>	Multilayered Wood Flooring From the People's Republic of China (A-570-970)
WTO	World Trade Organization

1 INTRODUCTION

1.1 Original proceedings

1.1. The present arbitration proceedings arise in the dispute initiated by China concerning certain methodologies used by the United States in anti-dumping proceedings concerning products imported from China.

1.2. On 22 May 2017, the Dispute Settlement Body (DSB) of the World Trade Organization (WTO) adopted the Appellate Body report in this dispute, together with the report of the panel as modified by the Appellate Body. In doing so, the DSB adopted the panel's findings, which were not appealed, that certain methodologies used by the United States are inconsistent with Articles 2.4.2, 6.10, 9.2, and 9.3 of the Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994 (Anti-Dumping Agreement) and Article VI:2 of the General Agreement on Tariffs and Trade 1994 (GATT 1994).¹

1.3. On 19 January 2018, following referral to arbitration under Article 21.3(c) of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), an arbitrator determined that the reasonable period of time for the United States to implement the DSB recommendations and rulings would expire on 22 August 2018.²

1.2 Request for arbitration and conduct of arbitration proceedings

1.4. On 9 September 2018, China requested authorization from the DSB to suspend concessions or other obligations to the United States with respect to trade in goods in the amount of United States dollar (USD) 7.043 billion.³

1.5. On 19 September 2018, the United States objected to China's proposed level of suspension.⁴ At the DSB meeting of 21 September 2018, the DSB took note that the matter raised by the United States had been referred to arbitration, as required by Article 22.6 of the DSU.⁵ The Arbitrator was constituted on 5 October 2018 and was composed as follows:

Chairperson: Mr José Pérez Gabilondo
Members: Ms Beatriz Leycegui Gardoqui
Ms Enie Neri de Ross⁶

1.6. An organizational meeting was held on 8 November 2018 to discuss procedural aspects of the arbitration proceedings. During the organizational meeting, the United States requested the Arbitrator to open the meeting with the parties to the public in full or in part. On 15 November 2018, after consulting with the parties, the Arbitrator adopted its Working Procedures which left open the issue of whether to open the meeting with the parties, pending the Arbitrator's ruling on the United States' request. At the joint request of both parties, the Arbitrator also adopted, on 15 November 2018, additional working procedures to protect the confidentiality of business confidential information (BCI). On 15 November 2018, the Arbitrator adopted its timetable, which it amended on 26 November 2018 and 16 May 2019. On 13 February 2019, the Arbitrator issued a procedural ruling concerning the United States' request for a partially open meeting and amended its Working Procedures accordingly.

1.7. In accordance with the timetable and Working Procedures adopted by the Arbitrator, China submitted a communication explaining its methodology for calculating the proposed level of suspension of concessions or other obligations on 26 November 2018. The United States filed its written submission on 7 January 2019, and China filed its written submission on 13 February 2019.

¹ Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 8.1.

² Award of the Arbitrator, *US – Anti-Dumping Methodologies (China) (Article 21.3(c))*, para. 4.1.

³ Recourse to Article 22.2 of the DSU by China, WT/DS471/18.

⁴ Recourse to Article 22.6 of the DSU by the United States, WT/DS471/19.

⁵ WT/DSB/M/418, para. 1.11.

⁶ WT/DS471/20.

The Arbitrator sent questions to the parties for written responses on 20 March 2019, to which the parties responded on 1 April 2019.

1.8. The Arbitrator held its substantive meeting with the parties on 24 April 2019. On 27 April 2019, the Arbitrator sent additional questions to the parties for written responses. The parties responded to these questions on 10 May 2019. In accordance with the Arbitrator's decision to grant certain extensions requested by both parties, the parties provided comments on each other's responses on 24 May 2019, the United States provided certain data and explanations on 5 and 11 June 2019, and China provided comments on these on 13 June 2019.

1.9. On 30 September 2019, the Arbitrator issued to the parties a version of its Decision containing BCI designated as such and contained between double brackets. In accordance with the Arbitrator's decision to grant an extension requested by China, the parties returned, on 8 October 2019, with requests for further redactions as well as requests for certain information to be unredacted. On 14 October 2019, the parties commented on each other's requests. On 17 October 2019, the United States made another request for further redactions. Taking into account the parties' requests and comments, the Arbitrator issued a modified version of its Decision to the parties on 17 October 2019. The Decision of the Arbitrator was circulated to WTO Members on 1 November 2019.

1.3 Mandate of the Arbitrator

1.10. The United States objects to China's proposed level of suspension of concessions or other obligations, contending that the proposed level is not equivalent to the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time. Pursuant to Article 22.4 of the DSU, "[t]he level of the suspension of concessions or other obligations authorized by the DSB shall be equivalent to the level of the nullification or impairment." In proceedings under Article 22.6 of the DSU, the mandate of the Arbitrator, as set out in Article 22.7 of the DSU, is as follows:

The arbitrator acting pursuant to paragraph 6 shall not examine the nature of the concessions or other obligations to be suspended but shall determine *whether the level of such suspension is equivalent to the level of nullification or impairment*. (emphasis added)

1.11. Thus, our mandate in these proceedings is to determine whether the level of suspension that China proposes (USD 7.043 billion) is equivalent⁷ to the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time. The burden of proving that the requirements of the DSU have not been met rests on the party challenging the proposed level of suspension⁸, here the United States. We also recall that, generally, "it is for each party to bring forward the elements to sustain the factual assertions it makes, and ... each party has a duty to collaborate in the establishment of the facts."⁹

1.12. Should we find that China's proposed level of suspension of concessions or other obligations is not equivalent to the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time, our mandate requires us to determine the level of suspension that would be equivalent to the level of nullification or impairment.¹⁰ In making that determination, previous arbitrators developed their

⁷ The term "equivalent" has been found to "connote[] a correspondence, identity or balance between two related levels, i.e. between the level of the concessions to be suspended, on the one hand, and the level of the nullification or impairment, on the other." (Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.1).

⁸ See e.g. Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 9; *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 3.2-3.3; *US – Gambling (Article 22.6 – US)*, paras. 2.22-2.23; and *US – COOL (Article 22.6 – US)*, para. 4.7.

⁹ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 2.24. See also Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 11; *US – 1916 Act (EC) (Article 22.6 – US)*, para. 3.6; and *US – COOL (Article 22.6 – US)*, para. 4.9.

¹⁰ See e.g. Decisions by the Arbitrators, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.69; *US – Gambling (Article 22.6 – US)*, paras. 3.172-3.174;; and *US – Washing Machines (Article 22.6 – US)*, para. 1.15.

own appropriate methodologies¹¹, based either on elements of methodologies the parties proposed¹², or on an altogether different approach.¹³ Our determination of the level of nullification or impairment will necessarily be a reasoned estimate, relying on certain assumptions.¹⁴ Such assumptions must, however, be reasonable and based on "credible, factual, and verifiable information", and "not on speculation".¹⁵ We will not accept claims that are "'too remote', 'too speculative', or 'not meaningfully quantified.'"¹⁶

1.13. In fulfilling our mandate, we bear in mind that, pursuant to Article 22.8 of the DSU, the suspension of concessions or other obligations shall be "temporary" pending full implementation of the DSB recommendations and rulings, or a mutually agreed solution. On this basis, previous arbitrators considered that the suspension of concessions or other obligations is to "induce compliance".¹⁷ Other arbitrators also observed that the concept of equivalence in Article 22.4 of the DSU means that obligations cannot be suspended in a "punitive" manner.¹⁸

1.4 Findings of inconsistency in the original proceedings

1.14. Since our mandate is to determine whether China's proposed level of suspension of concessions or other obligations is equivalent to the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time, we find it useful to begin our analysis by recalling the findings of inconsistency made in the original proceedings. These findings of inconsistency fall into two categories, which, for ease of reference, we refer to as: (a) findings of inconsistency concerning the United States' use of the weighted average-to-transaction (WA-T) methodology with zeroing in calculating dumping margins; and (b) findings of inconsistency concerning the United States' treatment of multiple exporters as a single, government-wide entity under the so-called Single Rate Presumption.

1.15. With respect to the United States' use of the WA-T methodology with zeroing, the original panel made "as applied" findings of violation with respect to dumping calculations made for four exporters in four anti-dumping proceedings. More particularly, the panel found that the United States Department of Commerce (USDOC) had acted inconsistently with Article 2.4.2 of the Anti-Dumping Agreement in determining that three exporters had engaged in targeted dumping, and in applying the WA-T methodology with zeroing to all export transactions when calculating the dumping margins for these three exporters in the *Coated Paper*, *OCTG*, and *Steel Cylinders* original investigations.¹⁹ The panel also found that the USDOC had acted inconsistently with Article 9.3 of the Anti-Dumping Agreement and Article VI:2 of the GATT 1994 in applying the WA-T methodology with zeroing when calculating the dumping margin for one exporter in the third administrative review in *PET Film*.²⁰ These findings of inconsistency were not appealed.

1.16. As for the Single Rate Presumption, the original panel made findings of violation with respect to the Single Rate Presumption "as such" and "as applied" in 38 anti-dumping proceedings covering 13 products.²¹ More particularly, the panel found that the USDOC's treatment of all exporters that

¹¹ See e.g. Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.115.

¹² See e.g. Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.174.

¹³ See e.g. Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, paras. 3.69-3.79.

¹⁴ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 41. See also Decisions by the Arbitrators, *US – COOL (Article 22.6 – US)*, para. 4.5; and *US – Washing Machines (Article 22.6 – US)*, para. 1.16.

¹⁵ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.54 and 5.63. See also Decisions by the Arbitrators, *US – COOL (Article 22.6 – US)*, para. 4.5; *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 5.16; and *US – Washing Machines (Article 22.6 – US)*, para. 1.16.

¹⁶ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.57.

¹⁷ Decisions by the Arbitrators, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.3; *EC – Hormones (US) (Article 22.6 – EC)*, para. 40; and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.7.

¹⁸ Decisions by the Arbitrators, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.3; and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.8.

¹⁹ Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 8.1.a.i-iv.

²⁰ Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 8.1.b.

²¹ (1) *Aluminum Extrusions*, (2) *Coated Paper*, (3) *Shrimp*, (4) *OTR Tires*, (5) *OCTG*, (6) *Solar Panels*, (7) *Diamond Sawblades*, (8) *Steel Cylinders*, (9) *Wood Flooring*, (10) *Ribbons*, (11) *Bags*, (12) *PET Film*, and (13) *Furniture*.

do not pass the so-called Separate Rate Test as a single government-wide entity in anti-dumping proceedings concerning non-market economy countries was a measure of general and prospective application that was, "as such", inconsistent with Articles 6.10 and 9.2 of the Anti-Dumping Agreement. The panel also found that the USDOC had acted inconsistently with Articles 6.10 and 9.2 of the Anti-Dumping Agreement in applying that measure to establish a People's Republic of China (PRC)-wide entity and in assigning to this entity a single PRC-wide duty rate in 13 original investigations and 25 administrative reviews.²² These findings of inconsistency were not appealed.

1.5 Structure of analysis

1.17. Below, we first address certain procedural matters. We then address certain preliminary issues by setting out the scope of these arbitration proceedings in terms of the products and anti-dumping orders at issue as well as the reference period for determining the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings. In accordance with our mandate, set out in section 1.3 above, we then proceed to determine whether the level of suspension of concessions or other obligations that China proposes is equivalent to the level of nullification or impairment. In this regard, we will assess: (a) the counterfactual used by China as the hypothetical scenario describing what would have happened had the United States implemented the DSB recommendations and rulings by the expiry of the reasonable period of time, and (b) the calculation methodology used by China to estimate the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time. If we do not find the counterfactual or calculation methodology that China proposes appropriate, we will make our own determination of the level of suspension that would be equivalent to the level of nullification or impairment.

2 PROCEDURAL MATTERS

2.1. In this section, we address two procedural matters raised in these proceedings, namely, the treatment of BCI and the United States' request for a partially open meeting.

2.1 Treatment of BCI

2.2. At the Arbitrator's organizational meeting held on 8 November 2018, both parties requested that the Arbitrator adopt additional working procedures to protect the confidentiality of BCI submitted in the course of the proceedings. As indicated in the preceding section, the Arbitrator adopted Additional Working Procedures of the Arbitrator Concerning Business Confidential Information (Additional Working Procedures) on 15 November 2018.²³

2.3. The Additional Working Procedures define the scope of information covered by the Additional Working Procedures²⁴, provide that each party shall clearly indicate the presence of BCI in its submissions²⁵, and limit access to, and permissible use of, BCI submitted in the course of the proceedings.²⁶

2.4. Paragraph 8 of the Additional Working Procedures provides that "[t]he Arbitrator will not disclose BCI, in its decision or in any other way, to persons not authorized under these procedures to have access to BCI." The paragraph goes on to state that the Arbitrator may "make statements of conclusion drawn from such information" and that the parties shall be given an opportunity to ensure that all BCI has been redacted from the Arbitrator's Decision prior to its circulation to the WTO membership. This paragraph forms the legal basis on which the Arbitrator has redacted BCI statements from the public version of this Decision.²⁷

2.5. Accordingly, the text of the version of our Decision circulated to Members is identical to the text of the confidential version issued to the parties, with the exception of passages that disclose

²² Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 8.1.c.iii.

²³ See Annex A-2.

²⁴ Additional Working Procedures, Annex A-2, para. 1.

²⁵ Additional Working Procedures, Annex A-2, paras. 6 and 7.

²⁶ Additional Working Procedures, Annex A-2, paras. 4 and 5.

²⁷ See Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.4.

BCI. Such passages have been replaced by "[***]". In drafting and redacting the Decision, we have tried to ensure that the public version of our Decision is understandable.²⁸

2.2 United States' request to open the Arbitrator's meeting to public observation

2.6. At the organizational meeting held on 8 November 2018, the United States requested that paragraph 10 of our draft Working Procedures be modified to open our meeting with the parties to the public, in full or in part. China objected to this request. In written comments submitted on 12 November 2018, the United States reiterated its request, and China its objection. On 14 November 2018, each party commented on the comments submitted by the other party.

2.7. On 13 February 2019, we communicated to the parties our ruling declining the United States' request and confirmed that our meeting with the parties would be conducted in closed session. The full text of our ruling on this matter is contained in Annex B-1.

3 SCOPE OF THE PRESENT ARBITRATION PROCEEDINGS

3.1 General

3.1. In this section, we set out the scope of the products and anti-dumping orders that will form the basis of our determination of the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time.

3.2. In estimating the level of nullification or impairment, China provides calculations for both the "as applied" and the "as such" findings of violation made in the original proceedings. With respect to the "as applied" findings of violation, China initially relied on the 13 anti-dumping orders that were subject to the "as applied" findings of violation, namely: (1) *Aluminum Extrusions*, (2) *Bags*, (3) *Coated Paper*, (4) *Diamond Sawblades*, (5) *Furniture*, (6) *OCTG*, (7) *OTR Tires*, (8) *PET Film*, (9) *Ribbons*, (10) *Shrimp*, (11) *Solar Panels*, (12) *Steel Cylinders*, and (13) *Wood Flooring*. China subsequently excluded *Aluminum Extrusions* from the scope and instead relies on the remaining 12 relevant anti-dumping orders.²⁹ With respect to the "as such" findings of violation, China argues that more than 100 anti-dumping orders are affected by the "as such" findings of violation, but selects only 12 additional anti-dumping orders as the basis for estimating the level of nullification or impairment concerning the "as such" findings of violation. These are: (14) *Copper Pipe and Tube*, (15) *Iron Pipe Fittings*, (16) *Passenger Vehicle and Light Truck Tires*, (17) *Residential Washers*, (18) *Sheet and Strip*, (19) *Steel Flat Products*, (20) *Steel Line Pipe*, (21) *Steel Nails*, (22) *Steel Pipe*, (23) *Steel Products*, (24) *Steel Standard, Line, and Pressure Pipe*, and (25) *Steel Wire Rod*.

3.3. Despite providing calculations for both the "as applied" and "as such" findings of violation, China bases its request for suspension in the amount of USD 7.043 billion only on the "as applied" findings of violation, arguing that these alone substantiate its request.³⁰ If the Arbitrator were to reject or lower China's estimated level of nullification or impairment concerning the "as applied" findings of violation, China requests the Arbitrator to "add to the lowered estimate" the level of nullification or impairment concerning the "as such" findings of violation.³¹

3.4. In estimating a lower level of nullification or impairment than that China proposes and arguing that China's request for suspension in the amount of USD 7.043 billion does not meet the requirements of the DSU, the United States initially relied on all 13 anti-dumping orders that were subject to the "as applied" findings of violation as well as the 12 additional selected anti-dumping orders that were subject to the "as such" findings of violation.³² Following China's decision to exclude *Aluminum Extrusions* from its calculations, the United States did so as well.³³ Further, following the USDOC's revocation of the *OTR Tires* order on 10 May 2019, the United States asked the Arbitrator

²⁸ See Appellate Body Report, *Japan – DRAMS (Korea)*, para. 279.

²⁹ China's written submission, fn 60; and response to Arbitrator question No. 1(a), para. 1.

³⁰ China's methodology paper, paras. 12 and 173.

³¹ China's methodology paper, para. 173.

³² See e.g. United States' written submission, paras. 4 and 7.

³³ United States' response to Arbitrator question No. 1(b), para. 2.

to also exclude this order from its determination, arguing that there can be no nullification or impairment concerning this order.³⁴

3.5. While there is no disagreement between the parties concerning 23 of the 25 anti-dumping orders at issue, they have differing views on whether we should include *Aluminum Extrusions* and *OTR Tires* in our determination. We address each of these anti-dumping orders separately below, and then provide an overall conclusion on the scope of these arbitration proceedings.

3.2 Aluminum Extrusions

3.6. China initially provided calculations for *Aluminum Extrusions* but subsequently chose to exclude this anti-dumping order, because the USDOC expanded the product scope of this anti-dumping order by including additional Harmonized Tariff Schedule (HTS) numbers in the period following the initial WTO dispute settlement proceedings. Since China's calculation methodology for estimating the level of nullification or impairment relies on public data, China considers that the expansion of the HTS numbers would result in "complications"³⁵, a "disproportionate amount of work"³⁶, and "extreme (but unavoidable) uncertainty".³⁷ China submits that it has chosen to exclude *Aluminum Extrusions* "for simplicity of presentation and in order to avoid a long, arduous debate about product scope"³⁸, also noting that its estimated level of nullification or impairment "far exceeds its \$7 billion request" even without *Aluminum Extrusions*.³⁹ China, however, argues that *Aluminum Extrusions* should not be excluded if the Arbitrator were to use a calculation methodology other than the one China proposes.⁴⁰ Specifically, China argues that the United States' proposed calculation methodology does not face the same complications since it does not rely on public data.⁴¹ The United States does not object to China's decision to exclude *Aluminum Extrusions* from its calculations, but submits that the scope should not depend on the methodological approach followed by the Arbitrator, as suggested by China.⁴² In the United States' view, this would run counter to "fundamental principles of procedural fairness", as it would require the United States to "try to argue against a constantly moving target".⁴³

3.7. It is undisputed that the *Aluminum Extrusions* order is covered by the findings of inconsistency in the original proceedings, and that China clearly identified *Aluminum Extrusions* as forming part of the scope of these arbitration proceedings in its methodology paper. The United States has not contested China's explanation that the exclusion of *Aluminum Extrusions* from China's calculations is based on practical reasons related to the use of public data under China's proposed calculation methodology.⁴⁴ We see no such practical reasons with respect to other calculation methodologies, including the one that the United States proposes. Indeed, the United States itself provided calculations for *Aluminum Extrusions* without pointing to any practical difficulties.⁴⁵

3.8. In light of this, we see no reason to prevent China from excluding *Aluminum Extrusions* from its own calculations while requesting that the Arbitrator not exclude *Aluminum Extrusions* if it were to use a calculation methodology other than the one China proposes. Further, we do not believe that this would deprive the United States of any due process rights. Since *Aluminum Extrusions* was clearly identified in China's methodology paper, the United States had sufficient time and opportunity to develop its arguments and calculations with respect to this anti-dumping order. Indeed, this is exactly what the United States did in its written submission as well as in its responses to the Arbitrator's questions.⁴⁶

³⁴ United States' comments on China's responses to Arbitrator questions, para. 2.

³⁵ China's written submission, fn 60.

³⁶ China's response to Arbitrator question No. 1(a), para. 1.

³⁷ China's response to Arbitrator question No. 1(a), para. 1.

³⁸ China's response to Arbitrator question No. 50(a), para. 2.

³⁹ China's opening statement at the meeting of the Arbitrator, para. 42. See also China's response to Arbitrator question No. 50(a), para. 4.

⁴⁰ China's opening statement at the meeting of the Arbitrator, para. 42.

⁴¹ China's response to Arbitrator question No. 50(a), para. 3.

⁴² United States' response to Arbitrator question No. 50(b), para. 2.

⁴³ United States' response to Arbitrator question No. 50(b), para. 2.

⁴⁴ United States' comments on China's response to Arbitrator question No. 50(a), para. 4.

⁴⁵ United States' written submission, para. 86.

⁴⁶ See e.g. United States' written submission, paras. 60, 76 and 86; and response to Arbitrator question No. 62, paras. 58-73.

3.3 OTR Tires

3.3.1 Assessment by the Arbitrator

3.9. The United States provided arguments and calculations concerning *OTR Tires* throughout these arbitration proceedings but explained, in its comments on China's responses to questions, that the USDOC revoked this anti-dumping order on 10 May 2019, effective as of 4 February 2019. In light of this, the United States argues that there can be no nullification or impairment concerning *OTR Tires*, and that the Arbitrator should exclude it from the scope of its determination.⁴⁷ When given the opportunity to comment on the new information and arguments provided by the United States, China objected to the United States' approach, requesting that the Arbitrator take into account this order in determining the level of nullification or impairment. In this regard, China points out that *OTR Tires* order had not been revoked by the expiry of the reasonable period of time, 22 August 2018, and remained effective for six additional months, covering most of the duration of these arbitration proceedings. The omission of *OTR Tires* would, in China's view, leave China without remedies for redressing the nullification or impairment suffered after the expiry of the reasonable period of time. China further submits that the United States did not revoke the *OTR Tires* order with a view to implementing the DSB recommendations and rulings, and points to the importance of inducing the United States to withdraw or modify the additional 24 anti-dumping orders at issue.⁴⁸

3.10. Our mandate is to determine whether the level of suspension that China proposes is equivalent to the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time. As explained below, where relevant and appropriate, we take into account modifications to the anti-dumping orders at issue implemented by the USDOC prior to the expiry of the reasonable period of time. For *OTR Tires*, however, it is undisputed that this anti-dumping order was in full effect by the expiry of the reasonable period of time. Consequently, if we were to exclude *OTR Tires* from the scope of our determination, we would be ignoring the nullification or impairment caused by the failure of the United States to implement the DSB recommendations and rulings on *OTR Tires* by the expiry of the reasonable period of time. Such an approach would not be consistent with our mandate.⁴⁹

3.3.2 Separate opinion of one member of the Arbitrator

3.11. The reasonable period of time for the United States to implement the DSB recommendations and rulings expired on 22 August 2018.⁵⁰ The anti-dumping order on *OTR Tires* was withdrawn by the USDOC on 4 February 2019. Thus, the DSB recommendations and rulings with respect to this order were fully implemented within less than six months following the expiry of the reasonable period of time. In light of this, I disagree with the majority's decision to take this order fully into account in estimating the level of nullification or impairment. In my view, the estimate of the level of nullification or impairment for this particular order should be prorated because it only remained in force for less than six months following the expiry of the reasonable period of time. Further, the DSB should authorize China to exercise its right to suspend concessions or other obligations with regard to this order for one year only, in an amount corresponding to the prorated level of nullification or impairment.

3.4 Conclusion

3.12. For the reasons set out above, we consider the scope of these arbitration proceedings to be as follows: For the purpose of assessing the level of nullification or impairment estimated by China, we will base our analysis on the 12 anti-dumping orders subject to the "as applied" findings of violation other than *Aluminum Extrusions*. These 12 anti-dumping orders are (1) *Bags*, (2) *Coated Paper*, (3) *Diamond Sawblades*, (4) *Furniture*, (5) *OCTG*, (6) *OTR Tires*, (7) *PET Film*, (8) *Ribbons*, (9) *Shrimp*, (10) *Solar Panels*, (11) *Steel Cylinders*, and (12) *Wood Flooring*.

⁴⁷ United States' comments on China's responses to Arbitrator questions, para. 2.

⁴⁸ China's communication of 13 June 2019, pp. 4-5. China explains that the USDOC revoked *OTR Tires* in the context of a sunset review, due to a lack of ongoing injury to the US domestic industry. (Ibid.)

⁴⁹ For a similar approach, see Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 3.4-3.25.

⁵⁰ Award of the Arbitrator, *US – Anti-Dumping Methodologies (China) (Article 21.3(c))*, para. 4.1.

3.13. If we find that the level of suspension that China proposes is not equivalent to the level of nullification or impairment stemming from these 12 anti-dumping orders and proceed to make our own determination using a different calculation methodology, we will base our determination on all 13 anti-dumping orders subject to the "as applied" findings of violation as well as the 12 additional anti-dumping orders subject to the "as such" findings of violation. These 25 anti-dumping orders are (1) *Aluminum Extrusions*, (2) *Bags*, (3) *Coated Paper*, (4) *Diamond Sawblades*, (5) *Furniture*, (6) *OCTG*, (7) *OTR Tires*, (8) *PET Film*, (9) *Ribbons*, (10) *Shrimp*, (11) *Solar Panels*, (12) *Steel Cylinders*, (13) *Wood Flooring*, (14) *Copper Pipe and Tube*, (15) *Iron Pipe Fittings*, (16) *Passenger Vehicle and Light Truck Tires*, (17) *Residential Washers*, (18) *Sheet and Strip*, (19) *Steel Flat Products*, (20) *Steel Line Pipe*, (21) *Steel Nails*, (22) *Steel Pipe*, (23) *Steel Products*, (24) *Steel Standard, Line, and Pressure Pipe*, and (25) *Steel Wire Rod*.

3.14. All of these 25 anti-dumping orders are covered by the original panel's findings of violation concerning the USDOC's use of the Single Rate Presumption. Only four of these anti-dumping orders, namely *Coated Paper*, *OCTG*, *Steel Cylinders*, and *PET Film*, are covered by the original panel's findings of violation concerning the USDOC's use of the WA-T methodology with zeroing.

4 REFERENCE PERIOD

4.1. Although the reasonable period of time, for the United States to implement the DSB recommendations and rulings, did not expire until 22 August 2018, China uses the calendar year of 2017 as the reference period for determining the level of nullification or impairment caused by the United States' failure to implement these recommendations and rulings.⁵¹ China explains that 2017 is the most recent year for which complete data is available, and further argues that its exports to the United States have been seriously distorted by multiple policy shifts in the United States during the calendar year of 2018, which resulted in additional tariffs on numerous products.⁵² The United States also uses 2017 as the reference period since this is a recent period of time for which data is available.⁵³

4.2. Taking into account the reasons presented by both parties, we too consider that 2017 is a reasonable reference period to use for determining the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time.

5 ARBITRATOR'S DETERMINATION OF THE APPROPRIATE COUNTERFACTUAL

5.1. In substantiating its request for suspension in the amount of USD 7.043 billion, China estimates the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by using a "counterfactual". Counterfactuals are frequently used by arbitrators and reflect "a hypothetical scenario that describes what would have happened in terms of trade flows had the responding party implemented the DSB recommendations and rulings".⁵⁴

5.2. We see a counterfactual as an analytical tool that allows an arbitrator acting under Article 22.6 of the DSU to determine the level of nullification or impairment caused by the WTO-inconsistent measures maintained by the original respondent. It is for the original respondent, here the United States, to determine how to implement the DSB recommendations and rulings in order to bring its measure into compliance with the covered agreements. Therefore, in determining a counterfactual, we will not prejudice how exactly the United States would have implemented the DSB recommendations and rulings at issue. Nor will we speculate on which compliance scenario would be the "most likely".⁵⁵ Rather, we will evaluate whether China's proposed counterfactual reflects "at least a plausible or 'reasonable' compliance scenario".⁵⁶ This assessment is, as explained by the arbitrator in *US - Gambling (Article 22.6 - US)*, connected to the specific circumstances of the

⁵¹ China's methodology paper, para. 54.

⁵² China's methodology paper, paras. 58-65.

⁵³ United States' written submission, fn 27.

⁵⁴ Decision by the Arbitrator, *US - Tuna II (Mexico) (Article 22.6 - US)*, para. 4.4.

⁵⁵ Decision by the Arbitrator, *US - Gambling (Article 22.6 - US)*, para. 3.26.

⁵⁶ Decision by the Arbitrator, *US - Gambling (Article 22.6 - US)*, para. 3.27. See also Decisions by the Arbitrators, *US - Tuna II (Mexico) (Article 22.6 - US)*, para. 4.5; and *US - Washing Machines (Article 22.6 - US)*, para. 3.10.

dispute and the original proceedings.⁵⁷ While we will necessarily have to rely on certain assumptions to answer the hypothetical question of what would have happened if the United States had implemented the DSB recommendations and rulings, these assumptions must be reasonable and "accurately reflect the benefits ... that have actually been nullified or impaired".⁵⁸

5.3. With these overall considerations in mind, we will first assess the counterfactual that China proposes. If we find that this counterfactual does not reflect a reasonable or plausible compliance scenario, we will proceed to determine an alternative counterfactual for all 25 anti-dumping orders at issue.⁵⁹

5.1 Assessment of China's proposed counterfactual

5.4. China proposes to use the withdrawal of the WTO-inconsistent measures as the counterfactual. In China's view, this entails withdrawal of the entirety of the anti-dumping orders at issue, meaning withdrawal of the anti-dumping duties assigned to all Chinese exporters under these anti-dumping orders.

5.5. China argues, first, that withdrawal of the WTO-inconsistent measures reflects the "express preference" in the DSU⁶⁰ and the "predominate practice" in prior Article 22.6 arbitration proceedings.⁶¹ Second, China points out that the United States has taken no action to comply with the DSB recommendations and rulings, and argues that China's proposed counterfactual would provide an incentive to induce compliance.⁶² Third, China argues that its proposed counterfactual is appropriate in the context of this specific dispute because it can be applied "easily and consistently" to all of the anti-dumping orders at issue⁶³ without the complexity of having to distinguish between the different findings of inconsistency⁶⁴ or having to speculate about factual or legal aspects.⁶⁵ The United States opposes China's proposed counterfactual, arguing that it goes beyond the DSB recommendations and rulings⁶⁶ because the findings of inconsistency in the original proceedings relate only to certain aspects of the anti-dumping orders at issue, whereas other aspects have not been found WTO-inconsistent.⁶⁷

5.6. We recall that the counterfactual reflects a hypothetical scenario describing what would have happened if the United States had brought its WTO-inconsistent measures into compliance with the DSB recommendations and rulings by the expiry of the reasonable period of time. China's proposal to use the withdrawal of all of the anti-dumping orders at issue as the counterfactual is premised on the understanding that the "WTO-inconsistent measures" comprise the entirety of the anti-dumping orders at issue. However, and as described in section 1.4 above, the findings of violation in the original proceedings did not concern the entirety of the anti-dumping orders at issue, but rather the USDOC's use of certain methodologies in calculating the dumping margins for a subset of the Chinese exporters subject to the relevant anti-dumping orders. More particularly, the measures found to be WTO-inconsistent were the USDOC's use of the WA-T methodology with zeroing "as applied" in certain anti-dumping proceedings, and its use of the Single Rate Presumption "as such" and "as applied" in certain anti-dumping proceedings. Thus, the scope of the findings of violation in the original proceedings covers less than the entirety of the anti-dumping orders at issue. First, the findings of violation pertain only to the USDOC's determination of dumping in the proceedings resulting in the anti-dumping orders at issue. No other substantive aspects, such as the USDOC's

⁵⁷ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.30.

⁵⁸ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.30.

⁵⁹ We recall that, although China has excluded *Aluminum Extrusions* from its calculations due to practical reasons relating to its calculation methodology, we have determined that it would be appropriate to base our determination of the level of nullification or impairment on all 25 anti-dumping orders at issue if we were to reject China's estimated level of nullification or impairment. (See paras. 3.6-3.8 and 3.12-3.13 above). We therefore find it useful to determine an appropriate counterfactual for all 25 anti-dumping orders at issue.

⁶⁰ China's written submission, para. 8. See also *ibid.* paras. 11-19.

⁶¹ China's written submission, para. 9. See also *ibid.* paras. 21-46; and China's response to Arbitrator question No. 2(a), paras. 9 and 11.

⁶² China's written submission, paras. 88-94. See also China's response to Arbitrator question No. 2(a), para. 31.

⁶³ China's written submission, para. 10.

⁶⁴ China's methodology paper, para. 25.

⁶⁵ China's methodology paper, para. 24; written submission, para. 86; and response to Arbitrator question No. 2(a), paras. 25 and 27-29.

⁶⁶ United States' written submission, para. 28. See also *ibid.* paras. 29-36.

⁶⁷ United States' written submission, para. 35.

determination of injury or causality, nor any procedural aspects of the proceedings, were implicated. Second, the dumping determinations implicated by the findings of violation pertain to a subset of the Chinese exporters subject to the anti-dumping orders. More particularly, in the relevant anti-dumping proceedings, the USDOC calculated individual duty rates for the Chinese exporters chosen for individual examination; assigned the so-called separate duty rate to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination; and assigned the PRC-wide duty rate to the Chinese exporters that did not pass the Separate Rate Test. It is undisputed that, in most of the anti-dumping orders, neither the dumping determinations made for the exporters that the USDOC examined individually, nor those made for the exporters subject to the separate duty rate, are implicated by the findings of violation in the original proceedings. China also acknowledges that certain elements of the anti-dumping orders were not found to be WTO-inconsistent.⁶⁸

5.7. Accordingly, the counterfactual must reflect what would have happened if, by the expiry of the reasonable period of time, the USDOC ceased using the WTO-inconsistent WA-T methodology with zeroing and the WTO-inconsistent Single Rate Presumption in the relevant anti-dumping proceedings, in this limited context. In our view, it would not be reasonable to assume that, had the USDOC ceased using the WTO-inconsistent WA-T methodology with zeroing and the WTO-inconsistent Single Rate Presumption, it would have withdrawn the entirety of the anti-dumping orders, including the anti-dumping duties imposed on exporters whose dumping margins were not calculated using these WTO-inconsistent methodologies. We agree with the United States that this would go beyond the DSB recommendations and rulings.

5.8. While we do not disagree with China's view that suspension of concessions or other obligations is meant to induce compliance, we do not believe that this warrants suspension of concessions or other obligations at a level going beyond the DSB recommendations and rulings. In our view, this would run the risk of suspending concessions or other obligations in a punitive manner. Further, while China's proposed counterfactual is undoubtedly more straightforward and easier to implement for purposes of estimating the level of nullification and impairment, in our view, this does not necessarily render the counterfactual a reasonable or plausible compliance scenario. We cannot let simplicity outweigh our guiding principle that the counterfactual must represent a reasonable or plausible compliance scenario.

5.9. For the reasons set out above, we conclude that China's proposal to use the withdrawal of the entirety of the anti-dumping orders at issue as the counterfactual does not reflect a reasonable or plausible compliance scenario. In order to fulfil our mandate, we therefore proceed to determine an alternative counterfactual to provide the basis for our estimation of the level of nullification or impairment.

5.2 Determination of an alternative counterfactual

5.10. Having found that China's proposed counterfactual does not reflect a reasonable or plausible compliance scenario, we proceed to determine an alternative counterfactual. In this regard, we find it useful to begin with an assessment of the United States' proposed counterfactual and consider whether that counterfactual can provide the basis for our determination.

5.11. The United States proposes to modify the anti-dumping duty rates calculated by the USDOC using the WTO-inconsistent methodologies, i.e. the WA-T methodology with zeroing and the Single Rate Presumption. The United States' proposal follows a case-by-case approach, under which the proposed counterfactual varies depending on the specific factual circumstances of each anti-dumping order and the types of violation it entails. In the United States' view, this is the only way to correctly estimate the impact of the USDOC's continued application of the WTO-inconsistent methodologies on China's exports to the United States.⁶⁹ China criticizes the United States' approach for being overly complex and for requiring too much speculation about legal and factual aspects and too much company-specific data that may not be publicly available.⁷⁰

⁶⁸ China's response to Arbitrator question No. 2, para. 13.

⁶⁹ United States' written submission, paras. 42-47.

⁷⁰ China's written submission, paras. 68-87; and response to Arbitrator question No. 2(a), paras. 24 and 29.

5.12. In our view, the complexity of the United States' proposed counterfactual does not, in and of itself, render it unreasonable or implausible. As explained above, the counterfactual must reflect what would have happened if, by the expiry of the reasonable period of time, the USDOC ceased using the WA-T methodology with zeroing and the Single Rate Presumption in the relevant anti-dumping proceedings. In light of this, we agree with the United States' overarching approach for determining the appropriate counterfactual. Specifically, we find it appropriate to determine the counterfactual on a case-by-case basis, taking into account the specific circumstances of each anti-dumping order and the types of violations it entails.

5.13. Below, we determine the appropriate counterfactual for all 25 anti-dumping orders, starting with the counterfactual for the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing in four anti-dumping orders and moving on to the counterfactual for the USDOC's use of the WTO-inconsistent Single Rate Presumption in all 25 anti-dumping orders at issue. We then provide an overall conclusion on the appropriate counterfactual for all 25 anti-dumping orders at issue.

5.2.1 Counterfactual for the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing

5.14. As mentioned above, the original panel's findings of violation concerning the USDOC's use of the WA-T methodology with zeroing only cover four of the anti-dumping orders at issue, namely *Coated Paper*, *OCTG*, *Steel Cylinders*, and *PET Film*. Due to the different factual circumstances surrounding these four anti-dumping orders, the United States proposes different counterfactuals for each order. We also address each anti-dumping order separately below.

5.2.1.1 Coated Paper

5.15. In the original investigation in *Coated Paper*, the USDOC determined that the Chinese exporter APP-China had engaged in targeted dumping, and calculated two dumping margins for this exporter. The first dumping margin was [[***]]% and was calculated using the weighted average-to-weighted average (WA-WA) methodology, one of the two methodologies which, pursuant to Article 2.4.2 of the Anti-Dumping Agreement, must normally be used in calculating dumping margins. The second dumping margin was 7.62% and was calculated using the exceptional WA-T methodology permitted under Article 2.4.2 in situations involving targeted dumping. The USDOC applied the WA-T methodology with zeroing to all of APP-China's export transactions. Since the WA-T dumping margin was higher than the WA-WA dumping margin, the USDOC determined that the WA-WA dumping margin would conceal APP-China's targeted dumping and therefore used the WA-T dumping margin to determine APP-China's individual duty rate.⁷¹ The USDOC also used the WA-T duty rate calculated for APP-China as the separate duty rate assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.⁷²

5.16. The United States argues that the Arbitrator should use a 0.00% duty rate as the counterfactual for APP-China since the WA-WA duty rate on record for APP-China is *de minimis*, [[***]]%. The United States also argues that the separate duty rate should be set to 0.00% since this duty rate was based solely on the individual duty rate calculated for APP-China using the WTO-inconsistent WA-T methodology with zeroing.⁷³ China submits that the reduction of the anti-dumping duty rate to 0.00% is not the same as withdrawal of the anti-dumping duty because, under the United States' retroactive anti-dumping system, anti-dumping orders are subject to annual administrative reviews during which the duty rates may change.⁷⁴ In China's view, the United States' proposed counterfactual ignores the chilling effect on trade of maintaining an anti-dumping order in place under the United States' retroactive anti-dumping system.⁷⁵ China, however, recognizes that there is insufficient information to estimate the magnitude of this chilling effect.⁷⁶

5.17. As explained above, the counterfactual must reflect what would have happened if the USDOC had ceased using the WTO-inconsistent WA-T methodology with zeroing in calculating the dumping

⁷¹ See Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 7.5-7.8. See also United States' written submission, para. 104.

⁷² United States' written submission, para. 104.

⁷³ United States' written submission, paras. 104-105.

⁷⁴ China's written submission, para. 198.

⁷⁵ China's response to Arbitrator question No. 6(b), para. 42, and No. 6(c), para. 46.

⁷⁶ China's response to Arbitrator question No. 58, paras. 32-33.

margin for APP-China by the expiry of the reasonable period of time. Given the factual circumstances described in paragraph 5.15, we consider it reasonable to assume that, had the USDOC not used the WA-T methodology with zeroing in calculating the dumping margin for APP-China, it would have used the *de minimis* WA-WA dumping margin of [[***]]% to determine a 0.00% individual duty rate for APP-China and to determine a 0.00% separate duty rate for the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.⁷⁷

5.18. In particular, we note that the *de minimis* WA-WA dumping margin of [[***]]% was calculated for APP-China by the USDOC in the relevant anti-dumping proceedings and forms part of the record in *Coated Paper*. We also recall that the original panel's findings of violation concerned only the USDOC's use of the WA-T methodology with zeroing, which was used in calculating the individual duty rate for APP-China and the separate duty rate. The original panel's findings of violation did not concern the USDOC's use of the WA-WA methodology, nor has China taken issue with the *de minimis* WA-WA dumping margin of [[***]]% in these arbitration proceedings or suggested that the figures provided by the United States are not credible.

5.19. With respect to the alleged chilling effect of a 0.00% duty rate, we recall that our task in these arbitration proceedings is economic in nature, and concerns the estimation of the level of nullification or impairment caused by the United States' failure to comply with the DSB recommendations and rulings. This determination must be based on credible, factual, and verifiable information, not speculation or claims that cannot be meaningfully quantified. China itself recognizes that there is insufficient information to estimate the magnitude of the alleged chilling effect⁷⁸, and explains that this should not prevent the use of a 0.00% duty rate as the counterfactual.⁷⁹ In light of this, we do not consider that the alleged chilling effect renders a 0.00% duty rate an unreasonable or implausible counterfactual.

5.20. For these reasons, we consider that the use of a 0.00% duty rate as the counterfactual for APP-China's individual duty rate and the separate duty rate in *Coated Paper* reflects a reasonable and plausible compliance scenario.

5.2.1.2 OCTG

5.21. In the original investigation in *OCTG*, the USDOC determined that the Chinese exporter TPCO had engaged in targeted dumping and calculated two dumping margins for this exporter. The first dumping margin was [[***]]% and was calculated using the WA-WA methodology. The second dumping margin was 32.07% and was calculated using the exceptional WA-T methodology. The USDOC applied the WA-T methodology with zeroing to all of TPCO's export transactions. Since the WA-T dumping margin was higher than the WA-WA dumping margin, the USDOC determined that the WA-WA dumping margin would conceal TPCO's targeted dumping, and therefore used the WA-T dumping margin to determine TPCO's individual duty rate.⁸⁰ The USDOC also used the WA-T duty rate calculated for TPCO as the separate duty rate assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.⁸¹

5.22. The United States argues that there is no need to use a counterfactual and that the level of nullification or impairment is zero, because the individual duty rate calculated for TPCO using the WTO-inconsistent WA-T methodology with zeroing is 32.07% whereas the duty rate on record for TPCO calculated using the WA-WA methodology is [[***]]%. In light of the difference being less than [[***]]% points, the United States argues that it is reasonable to assume that the impact on trade levels would be minimal.⁸² China does not explicitly address the United States' arguments concerning the USDOC's use of the WA-T methodology with zeroing in *OCTG*.⁸³

⁷⁷ A similar approach was followed in a previous arbitration pursuant to Article 22.6 of the DSU. (See Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.25-3.33).

⁷⁸ China's response to Arbitrator question No. 58, paras. 32-33.

⁷⁹ China's comments on the United States' response to Arbitrator question No. 51, paras. 2-3.

⁸⁰ See Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 7.5-7.8. See also United States' written submission, para. 108.

⁸¹ United States' written submission, para. 108.

⁸² United States' written submission, paras. 108-109; and response to Arbitrator question No. 11(a), para. 35.

⁸³ See China's written submission, para. 193.

5.23. As explained above, the counterfactual must reflect what would have happened if, by the expiry of the reasonable period of time, the USDOC had ceased using the WTO-inconsistent WA-T methodology with zeroing in calculating the dumping margin for TPCO. Given the factual circumstances described in paragraph 5.21 above, we consider it reasonable to assume that, had the USDOC not used the WA-T methodology with zeroing in calculating the dumping margin for TPCO, it would have used the WA-WA dumping margin of [[***]]% to determine the individual duty rate assigned to this exporter and to determine the separate duty rate assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.⁸⁴

5.24. In particular, we note that the WA-WA dumping margin of [[***]]% was calculated for TPCO by the USDOC in the relevant anti-dumping proceedings and forms part of the record in *OCTG*. We also recall that the original panel's findings of violation concerned only the USDOC's use of the WA-T methodology with zeroing, which was used in calculating the individual duty rate for TPCO and the separate duty rate. The original panel's findings of violation did not concern the USDOC's use of the WA-WA methodology, nor has China taken issue with the WA-WA duty rate in these arbitration proceedings or suggested that the figures provided by the United States are not based on credible or factual information.

5.25. We see no basis, in the DSU or elsewhere, for setting the level of nullification or impairment to zero solely because the difference between the actual duty rate and the counterfactual duty rate is small, and the impact on trade may accordingly prove small. In support of its view, the United States refers to the decision by the arbitrator in *US – 1916 Act (EC) (Article 22.6 – US)*, and argues that it is reasonable to assume that there is no nullification or impairment where "the impact would be so small that it cannot be 'meaningfully quantified'."⁸⁵ We note that the arbitrator in *US – 1916 Act (EC) (Article 22.6 – US)* followed an approach under which it did not accept claims that were "'too remote', 'too speculative', or 'not meaningfully quantified'"⁸⁶, and on this basis did not include undisclosed settlement awards in its estimation of the level of nullification or impairment.⁸⁷ In these proceedings, the United States has not pointed to any comparable circumstances, which would cause us to speculate or to include claims that cannot meaningfully be quantified.⁸⁸ To the contrary, the relevant figures form part of the official record in *OCTG*.

5.26. For these reasons, we consider that the use of a [[***]]% duty rate as the counterfactual for TPCO's individual duty rate and the separate duty rate in *OCTG* reflects a reasonable and plausible compliance scenario.

5.2.1.3 Steel Cylinders

5.27. In the *Steel Cylinders* original investigation, the USDOC determined that the Chinese exporter BTIC had engaged in targeted dumping and assigned this exporter an individual duty rate of 6.62% calculated using the WA-T methodology with zeroing.⁸⁹ The USDOC also used the WA-T duty rate of 6.62% as the separate duty rate assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.⁹⁰ The USDOC revoked the duty rate for BTIC

⁸⁴ A similar approach was followed in a previous arbitration pursuant to Article 22.6 of the DSU. (See Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.25-3.33).

⁸⁵ United States' response to Arbitrator question No.11(a), para. 35 (quoting Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 6.10).

⁸⁶ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.57.

⁸⁷ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 6.10.

⁸⁸ Although the United States argues that there are not sufficient levels of imports from China to use its first proposed calculation methodology, the Armington model, to estimate the level of nullification or impairment concerning the USDOC's use of the WA-T methodology with zeroing in *OCTG*, the United States does not explain why it cannot estimate the level of nullification or impairment using its second proposed calculation methodology, the formula-based approach, or another calculation methodology. The United States initially explained that it did not have data on TPCO's market share prior to the imposition of the anti-dumping order but has subsequently provided such data for all individual Chinese exporters subject to all of the anti-dumping orders at issue. (United States' written submission, para. 109; response to Arbitrator question No. 11(b), para. 37; and Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI))).

⁸⁹ See Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 7.5-7.8. See also United States' response to Arbitrator question No. 7, para. 33.

⁹⁰ United States' response to Arbitrator question No. 7, para. 33.

on 27 August 2017⁹¹, but continues to assign the duty rate calculated for BTIC using the WA-T methodology with zeroing as the separate duty rate.⁹²

5.28. The United States argues that there is no need to use a counterfactual and that the level of nullification or impairment is zero, because the individual duty rate for BTIC was revoked prior to the expiry of the reasonable period of time.⁹³ Although the separate duty rate continues to be based solely on the duty rate previously calculated for BTIC using the WTO-inconsistent WA-T methodology with zeroing, the United States argues that there is no nullification or impairment because China did not challenge the separate duty rate in the original proceedings.⁹⁴ China does not object to the United States' view that there is no nullification or impairment with respect to BTIC.⁹⁵ However, China argues that the Arbitrator should calculate the level of nullification or impairment caused by the USDOC's continued use of BTIC's WA-T duty rate of 6.62% as the separate duty rate, by using a counterfactual duty rate of 0.00%.⁹⁶

5.29. It is undisputed that the duty rate calculated for BTIC using the WTO-inconsistent WA-T methodology with zeroing was revoked prior to the expiry of the reasonable period of time. We therefore agree with the view, expressed by both parties, that there is no nullification or impairment with respect to BTIC. We note, however, that the USDOC continues to assign the duty rate calculated for BTIC using the WTO-inconsistent WA-T methodology with zeroing as the separate duty rate. While the United States is correct that China, in the original proceedings, did not challenge the USDOC's determination regarding the separate duty rate, our task is economic in nature and requires us to estimate the level of nullification or impairment caused by the USDOC's use of the WA-T methodology with zeroing in *Steel Cylinders*. Since the WA-T duty rate of 6.62% was assigned not only as the individual duty rate for BTIC but also as the separate duty rate, we consider it reasonable to assume that, had the USDOC ceased using the WA-T methodology with zeroing in calculating the individual duty rate for BTIC, it would also not have assigned that duty rate as the separate duty rate in *Steel Cylinders*.

5.30. Neither party has pointed to alternative figures from the record of *Steel Cylinders* that could be used as the counterfactual for the separate duty rate. In light of this, we cannot speculate on how the USDOC would have calculated the separate duty rate, had the USDOC not used the duty rate calculated for BTIC using the WTO-inconsistent WA-T methodology with zeroing as the separate duty rate. We therefore consider that a duty rate of 0.00% is a reasonable proxy for what the separate duty rate would have been, had the USDOC ceased using the WA-T duty rate of 6.62% as the separate duty rate by the expiry of the reasonable period of time. Indeed, the United States itself follows this approach in setting out its proposed counterfactual for the USDOC's use of the WA-T methodology with zeroing in *Coated Paper*. For this anti-dumping order, the United States acknowledges that a duty rate of 0.00% should be used as the counterfactual for both APP-China's individual duty rate and for the separate duty rate.⁹⁷ When asked to explain the difference between its approach in *Coated Paper* and in *Steel Cylinders*, the United States suggests that the separate duty rate in *Steel Cylinders* should be modified "in a manner consistent with the separate duty rate the United States used in *Coated Paper*" and that it "uses a duty rate of zero".⁹⁸

5.31. For these reasons, we consider that the use of a 0.00% duty rate as the counterfactual for the separate duty rate in *Steel Cylinders* reflects a reasonable and plausible compliance scenario.

5.2.1.4 PET Film

5.32. In the third administrative review in *PET Film*, the USDOC determined that the Chinese exporter DuPont Group had engaged in targeted dumping and assigned this exporter an individual

⁹¹ United States written submission, para. 102 (referring to *High Pressure Steel Cylinders From the People's Republic of China: Notice of Court Decision Not in Harmony With Final Determination in Less Than Fair Value Investigation, Notice of Amended Final Determination Pursuant to Court Decision, Notice of Revocation of Antidumping Duty Order in Part, and Discontinuation of Fifth Antidumping Duty Administrative Review*, 82 Fed. Reg. 46,758 (6 October 2017) (Exhibit USA-7)).

⁹² United States' response to Arbitrator question No. 7, para. 33.

⁹³ United States' written submission, para. 102.

⁹⁴ United States' response to Arbitrator question No. 7, paras. 33-34.

⁹⁵ China's response to Arbitrator question No. 60(a), para. 34.

⁹⁶ China's response to Arbitrator question No. 60(b), para. 35.

⁹⁷ United States' written submission, para. 105.

⁹⁸ United States' response to Arbitrator question No. 59, para. 45.

duty rate of 3.49% calculated using the WTO-inconsistent WA-T methodology with zeroing.⁹⁹ The USDOC also used the WA-T duty rate of 3.49% as the separate duty rate assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination.¹⁰⁰ In the fourth administrative review, published on 2 July 2014, the USDOC did not choose the DuPont Group for individual examination and, thus, did not calculate an individual duty rate for the DuPont Group through either the WA-WA methodology or the WA-T methodology with zeroing. Rather, the DuPont Group was assigned the separate duty rate of 31.24% based on the duty rates calculated for two individually examined exporters, neither of which were calculated using the WA-T methodology with zeroing.¹⁰¹

5.33. The United States argues that there is no need to use a counterfactual and that the level of nullification or impairment is zero, because the individual duty rate that had been calculated for the DuPont Group through the WA-T methodology with zeroing was, prior to the expiry of the reasonable period of time, replaced by the separate duty rate that had been calculated in a WTO-consistent manner. China submits that, under the United States' retroactive anti-dumping system, the DuPont Group's duty rate could be subject to administrative reviews in future years. Since the United States has not taken steps to implement the DSB recommendations and rulings concerning the USDOC's use of the WA-T methodology with zeroing, the USDOC could recalculate the DuPont Group's duty rate using this methodology in future proceedings.¹⁰²

5.34. In our view, by replacing the DuPont Group's individual duty rate with a duty rate that was not calculated using the WTO-inconsistent WA-T methodology with zeroing, the USDOC has withdrawn its use of that methodology in calculating the individual duty rate for the DuPont Group. China is right in arguing that the USDOC might calculate duty rates for the DuPont Group in future administrative reviews, using the WA-T methodology with zeroing. However, we recall that China's claims and the panel's findings in the original proceedings concerned only the USDOC's use of the WA-T methodology with zeroing "as applied" in the third administrative review in *PET Film*.¹⁰³ They did not concern the USDOC's potential future use of this methodology in subsequent administrative reviews. Our mandate is, as mentioned above, to determine the level of nullification or impairment by comparing the existing level of trade for China under the WTO-inconsistent measure with the expected level of trade for China, had the United States brought its WTO-inconsistent measure into conformity by the expiry of the reasonable period of time. In *PET Film*, the United States ceased its use of the WTO-inconsistent WA-T methodology with zeroing prior to the expiry of the reasonable period of time, and we therefore have no basis for estimating any level of nullification or impairment with respect to the USDOC's use of the WA-T methodology in this anti-dumping order. In our view, it would be too speculative to consider the possibility that the USDOC might reintroduce its use of the WA-T methodology with zeroing in calculating the duty rate for the DuPont Group during future administrative reviews.

5.35. For these reasons, we consider that there is no nullification or impairment caused by the USDOC's use of the WTO-inconsistent WA-T methodology in *PET Film*.

5.2.2 Counterfactual for the USDOC's use of the WTO-inconsistent Single Rate Presumption

5.2.2.1 Assessment by the Arbitrator

5.36. As mentioned above, the original panel's findings of violation concerning the USDOC's use of the WTO-inconsistent Single Rate Presumption cover all of the 25 anti-dumping orders at issue, including the four anti-dumping orders covered by the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing. More particularly, in the proceedings resulting in the 25 anti-dumping orders at issue, the USDOC presumed that all Chinese exporters comprised a single PRC-wide entity

⁹⁹ See Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 7.5-7.8. See also United States' written submission, para. 103; and response to Arbitrator question No. 7, para. 30.

¹⁰⁰ United States' response to Arbitrator question No. 7, para. 30.

¹⁰¹ United States' response to Arbitrator question No. 7, para. 31.

¹⁰² China's response to Arbitrator question No. 9, paras. 50-52.

¹⁰³ See Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 3.1.b, 7.239, and 8.1.b.

and assigned these exporters a single PRC-wide duty rate unless they overcame the Single Rate Presumption by passing the Separate Rate Test.¹⁰⁴

5.37. The United States argues that, for the purpose of determining the correct counterfactual, the Chinese exporters within the PRC-wide entity should be divided into two groups: exporters "for which there is evidence that they failed to cooperate" and exporters "for which there is no evidence that they failed to cooperate".¹⁰⁵ For the first group of exporters, the United States argues that there is no need to use a counterfactual, because these exporters' failure to cooperate renders it reasonable to continue assigning them the PRC-wide duty rate, which is calculated on the basis of adverse facts available.¹⁰⁶ For the second group of exporters, the United States proposes to use the separate duty rates on record as the counterfactual.¹⁰⁷ In the United States' view, the original panel's findings of violation concerning the use of the Single Rate Presumption would not necessarily require the USDOC to individually examine each exporter within the PRC-wide entity. Rather, they would allow the USDOC to limit its examination under Article 6.10 of the Anti-Dumping Agreement and assign these exporters the separate duty rate, assigned to other Chinese exporters that had initially passed the Separate Rate Test but were not chosen for individual examination.¹⁰⁸

5.38. China objects to the United States' proposal to continue assigning the PRC-wide duty rate to exporters within the PRC-wide entity for which there is evidence that they failed to cooperate. In this regard, China distinguishes between exporters that believed that they provided all necessary information to the USDOC and exporters that did not. For the former, China argues that the use of a duty rate based on facts available is WTO-inconsistent. For the latter, China recognizes that facts available could be used but argues that these should have been "neutral", not "adverse", facts available.¹⁰⁹ China also objects to the United States' proposal to use the separate duty rates on record as the counterfactual for exporters within the PRC-wide entity for which there is no evidence that they failed to cooperate. In this regard, China argues that the United States' proposed counterfactual assumes that the separate duty rates on record are WTO-consistent which, in China's view, is not the case. In this regard, China lists a "range of likely WTO-inconsistencies"¹¹⁰, namely the USDOC's improper use of adverse facts available¹¹¹; the USDOC's improper use of "double-counting" duties from anti-dumping and countervailing duty investigations¹¹²; and the USDOC's improper use of differential pricing as well as the WA-T methodology with zeroing.¹¹³

5.39. The parties' arguments raise the issue of whether we, in our role as an arbitrator acting pursuant to Article 22.6 of the DSU, can take into account the proposed counterfactual's consistency with WTO obligations other than those that formed the basis of the original panel's findings of violation. The parties have expressed opposing views on this issue. The United States is of the view that an examination of the "likely" WTO inconsistency of its proposed counterfactual would go

¹⁰⁴ See e.g. Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 7.311.

¹⁰⁵ United States' written submission, para. 40.

¹⁰⁶ United States' written submission, paras. 40-41; and response to Arbitrator question No. 55(d), para. 41. Although, in setting out its counterfactual, the United States generally distinguishes between exporters based on their cooperation, it only relies on that distinction when applying its proposed calculation methodologies to five anti-dumping orders, namely *Furniture*; *OCTG*; *OTR Tires*; *Solar Cells*; and *Wood Flooring*. For the remaining 20 anti-dumping orders, the United States does not rely on the distinction between non-cooperating and cooperating exporters in applying its calculation methodologies, due to lack of data. Instead, the United States estimates the level of nullification or impairment based on a counterfactual scenario where all exporters within the PRC-wide entity, regardless of whether they cooperated or not, are assigned the separate duty rate instead of the PRC-wide duty rate. The United States argues that, in doing so, it is overestimating the level of nullification or impairment. (United States' written submission, paras. 93-96; and responses to Arbitrator question No. 3(a), para. 3, and No. 55(a), para. 27).

¹⁰⁷ United States' written submission, paras. 40-41. For three anti-dumping orders, namely *Iron Pipe Fittings*; *Steel Flat Products*; and *Residential Washers*, there is no separate duty rate on record and the United States therefore proposes to use a proxy of 0.00% as the counterfactual duty rate for the exporters within the PRC-wide entity for which there is no evidence that they failed to cooperate. (United States' written submission, para. 76; and response to Arbitrator question No. 51, para. 5). For two anti-dumping orders, namely *Diamond Sawblades* and *Steel Products*, the separate duty rate on record is the same as the PRC-wide duty rate, and the United States therefore argues that there is no nullification or impairment. (United States' written submission, paras. 57-59).

¹⁰⁸ United States' response to Arbitrator question No. 3(b)(i), paras. 4 and 9.

¹⁰⁹ China's response to Arbitrator question No. 56, paras. 26-29.

¹¹⁰ China's written submission, paras. 217-218.

¹¹¹ China's written submission, paras. 220-228.

¹¹² China's written submission, paras. 229-230.

¹¹³ China's written submission, paras. 231-234.

beyond the DSB recommendations and rulings and thus beyond the mandate under Article 22.6 of the DSU.¹¹⁴ China, on the other hand, argues that the DSU makes it clear that a determination of the level of nullification or impairment under Article 22.6 of the DSU must be measured against a WTO-consistent benchmark. While China agrees that an arbitrator cannot make "formal" findings of WTO inconsistency, it argues that an arbitrator has the authority to consider the likely WTO consistency of a proposed counterfactual as a part of its determination of whether that counterfactual is reasonable.¹¹⁵

5.40. We recall that there is a difference between, on the one hand, assessing the WTO consistency of a measure or a measure taken to comply with the DSB recommendations and rulings, and, on the other hand, assessing whether a proposed counterfactual represents a reasonable or plausible compliance scenario. We agree with the view expressed by both parties that it is not for us to make findings of WTO inconsistency with respect to a measure or a measure taken to comply with the DSB recommendations and rulings. This is the mandate of a panel acting pursuant to Article 11 of the DSU or a compliance panel acting pursuant to Article 21.5 of the DSU. Our mandate is to assess a hypothetical counterfactual and determine whether this counterfactual reflects at least a reasonable or plausible compliance scenario. In our view, it would be incongruous to assess whether a counterfactual reflects a reasonable or plausible compliance scenario without considering that counterfactual's WTO consistency. In this regard, we recall that compliance requires full consistency with WTO obligations, not just those forming part of the original proceedings.¹¹⁶ In considering whether the United States' proposed counterfactual reflects a reasonable or plausible compliance scenario, we will therefore take into account that counterfactual's WTO consistency with the covered agreements.¹¹⁷ We will not limit this assessment to the provisions that were found to have been violated in the original proceedings. We see no basis for distinguishing, in fulfilling our mandate to determine a reasonable or plausible compliance scenario, between WTO obligations that were found to have been violated in the original proceedings and other WTO obligations. In our view, this distinction is arbitrary as it would compel an arbitrator to accept a proposed counterfactual without any regard to its inconsistency with other relevant WTO obligations. Such an approach would, in our view, fall short of fulfilling an arbitrator's mandate under Article 22.6, and would diminish the effectiveness of the WTO dispute settlement system. With this in mind, we now turn to our assessment of the particular elements of the counterfactual that the United States proposes.

5.41. First, we address the United States' proposal to divide the Chinese exporters within the PRC-wide entity into groups based on their cooperation, and to continue assigning the PRC-wide duty rate to exporters "for which there is evidence that they failed to cooperate". The United States argues that these exporters' failure to cooperate entails that they could have been assigned a duty rate based on adverse facts available even if they were not part of the PRC-wide entity.¹¹⁸ In this regard, we recall that Article 6.8 of the Anti-Dumping Agreement permits an investigating authority to base its determinations on facts available where an interested party "refuses access to, or otherwise does not provide, necessary information within a reasonable period or significantly impedes the investigation". In using facts available, an investigating authority must comply with the provisions of Annex II, which provides for a process aimed at ensuring the use of the best facts available. In this regard, we recall that, while an interested party's failure to cooperate could lead to a result that is less favourable to the party than if it had cooperated, cooperation is "a process, involving joint effort" by the relevant party and the investigating authority and "the fact of 'cooperating' is in itself not determinative of the end result of the cooperation".¹¹⁹

5.42. Despite arguing that there are exporters within the PRC-wide entity for which there is evidence that they failed to cooperate, the United States explains that the USDOC did not make a determination that any individual exporter within the PRC-wide entity failed to cooperate within the meaning of Article 6.8 and Annex II. Although the United States distinguishes, in these proceedings, between exporters within the PRC-wide entity based on their cooperation, it acknowledges that the USDOC made no such distinction in the actual investigations and administrative reviews underlying

¹¹⁴ United States' response to Arbitrator question No. 54(b), paras. 13-14.

¹¹⁵ China's response to Arbitrator question No. 54(a), paras. 11-15.

¹¹⁶ See Appellate Body Report, *EC – Bed Linen (Article 21.5 – India)*, para. 79. See also Appellate Body Reports, *Canada – Continued Suspension*, para. 305; and *US – Continued Suspension*, para. 305.

¹¹⁷ Previous arbitrators have also considered counterfactuals that were WTO-consistent. (See Decisions by the Arbitrators, *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, para. 166; and *EC – Bananas III (US) (Article 22.6 – EC)*, para. 7.1).

¹¹⁸ United States' written submission, para. 40 and fn 35.

¹¹⁹ Appellate Body Report, *US – Hot-Rolled Steel*, para. 99.

the anti-dumping orders at issue. More particularly, the USDOC did not make determinations of non-cooperation that were "specific" to individual exporters within the PRC-wide entity¹²⁰, but rather determined that the PRC-wide entity "as an entity" failed to cooperate.¹²¹

5.43. The gist of the original panel's findings of violation concerning the Single Rate Presumption is that the USDOC acted inconsistently with its WTO obligations in treating multiple exporters as a single PRC-wide entity and assigning these exporters a single PRC-wide duty rate on the basis of a presumption rather than an affirmative determination that these exporters were in such a relationship that they could be treated as a single entity.¹²² No evidence has been submitted indicating that the USDOC subsequently made any such affirmative determination for all or some of the exporters within the PRC-wide entity. Considering this, we have difficulty understanding how the USDOC's determination of non-cooperation by the PRC-wide entity "as an entity" could serve as a basis to assign individual exporters within the PRC-wide entity a duty rate based on adverse facts available. In our view, assigning the PRC-wide duty rate to the group of exporters for which there is evidence that they failed to cooperate would perpetuate the treatment of multiple exporters as a PRC-wide entity, albeit one with fewer exporters in it. In the absence of an affirmative determination concerning their relationship, such monolithic treatment of a group of exporters would, in our view, contravene the original panel's findings of violation concerning the Single Rate Presumption. Therefore, considering that the USDOC did not determine that any of the individual exporters within the PRC-wide entity failed to cooperate, we believe it would be too speculative to assume that the USDOC could continue assigning individual exporters within the PRC-wide entity the PRC-wide duty rate.

5.44. Furthermore, we recall that, where an interested party does not provide necessary information and the investigating authority decides to make its determination on the basis of facts available, it must follow the process set out in Annex II in order to ensure that it uses the best facts available. When asked whether the USDOC followed the process set out in Annex II for the exporters within the PRC-wide entity for which there is evidence that they failed to cooperate, the United States reiterates its explanation that the USDOC did not make findings of non-cooperation that were specific

¹²⁰ United States' response to Arbitrator question No. 55(b), para. 33.

¹²¹ United States' response to Arbitrator question No. 4, para. 15. The United States explains that the USDOC's determinations of non-cooperation in some instances "identif[ied] by name certain companies in the China-government entity that did not cooperate", and in other instances were "more general, focusing on the type of non-cooperative behavior". (United States' response to Arbitrator question No. 4, para. 16). The United States provides one example to demonstrate how it identifies non-cooperating exporters where the USDOC's determination of non-cooperation was "more general": For *OTR Tires*, the United States submits that 90 exporters received a quantity and value (Q&V) questionnaire, but only 14 exporters provided responses to this questionnaire whereas 76 exporters did not. On this basis, the United States argues that there is evidence that 84.4% of the exporters in the PRC-wide entity failed to cooperate and that 84.4% of the PRC-wide entity's imports should continue to be subject to the PRC-wide duty rate of 105.31%. (See United States' response to Arbitrator question No. 55(a), paras. 30-32; US Federal Register Notices Regarding Preliminary Determinations in Anti-Dumping Duty Investigations, (Exhibit USA-51), pp. 9278-9279; Information on Response Rate to USDOC Q&V Questionnaire in Anti-Dumping Duty Investigations, (Exhibit USA-55), p. 1; and Table of Relevant Anti-Dumping Duty Rates, (Exhibit USA-5), p. 1). We note that there are certain issues with this approach. More particularly, when examining the record of *OTR Tires*, it appears that 94 exporters received a Q&V questionnaire and that 30 exporters responded. The United States itself quotes these figures but uses other figures to determine the percentage of non-cooperating exporters without further explanation. (United States' response to Arbitrator question No. 55(a), para. 31 (quoting US Federal Register Notices Regarding Preliminary Determinations in Anti-Dumping Duty Investigations, (Exhibit USA-51), pp. 9278-9279)). Moreover, and as pointed out by China, in calculating the percentage of non-cooperating exporters, the United States does not identify any specific individual exporters and their volume or share of imports. (China's comments on the United States' response to Arbitrator question No. 55(a), paras. 23-27). Rather, the United States calculates the share of non-cooperating exporters based on an assumption that all exporters within the PRC-wide entity account for exactly the same, average share of imports, without providing any explanation regarding the reasonableness of this assumption.

¹²² We recall that, in the original proceedings, China presented claims, among others, under Article 6.8 and Annex II of the Anti-Dumping Agreement, challenging the USDOC's use of adverse facts available in determining the PRC-wide duty rate. The original panel applied judicial economy to those claims. In doing so, the original panel emphasized that China's claims concerned the USDOC's use of adverse facts available in determining the PRC-wide entity's duty rate, and that therefore it would not be appropriate for the panel to make findings concerning the use of adverse facts available for individual exporters within the PRC-wide entity. (Panel Report, *US – Anti-Dumping Methodologies (China)*, paras. 7.494-7.495). Hence, even if the original panel had made findings on China's claims under Article 6.8 and Annex II of the Anti-Dumping Agreement, such findings would not have been relevant to our assessment of the reasonableness or plausibility of the counterfactuals proposed in these proceedings.

to individual exporters within the PRC-wide entity.¹²³ To us, this suggests that the USDOC did not follow the Annex II process in order to determine which facts available to use in calculating duty rates for the individual exporters within the PRC-wide entity for which there is evidence that they failed to cooperate. This further supports our view that it would be too speculative to assume that the USDOC could have continued assigning individual exporters within the PRC-entity the PRC-wide duty rate, which was calculated on the basis of facts available chosen for that entity.

5.45. Considering that the USDOC did not make findings of non-cooperation nor follow the process under Article 6.8 and Annex II for individual exporters within the PRC-wide entity, we do not consider that the continued use of the PRC-wide duty rate reflects a reasonable or plausible compliance scenario for any of the individual exporters within the PRC-wide entity. Instead, we will determine an appropriate counterfactual for all exporters within the PRC-wide entity.

5.46. Having rejected the United States' proposal to divide the Chinese exporters within the PRC-wide entity into groups based on their cooperation, we next have to determine an appropriate counterfactual for all exporters within the PRC-wide entity. That is, what duty rate would have been assigned to the exporters within the PRC-wide entity, had the USDOC ceased using the Single Rate Presumption by the expiry of the reasonable period of time, and thus not included these exporters in the PRC-wide entity and assigned them the PRC-wide duty rate? We recall that, in its proposed counterfactual, the United States suggests using the separate duty rates on the record of the anti-dumping orders at issue.

5.47. Article 6.10 of the Anti-Dumping Agreement requires an investigating authority to determine, as a rule, individual duty rates for all exporters, but permits limited examination of selected exporters where the number of exporters is so large that individual examination of each exporter would be "impracticable".¹²⁴ If, however, an exporter has provided the necessary information in time, the investigating authority must calculate an individual duty rate, unless the number of exporters is so large that individual examination would be "unduly burdensome" and prevent the "timely completion" of the investigation.¹²⁵ That is, even in cases where the investigating authority limits its examination, it must nevertheless calculate individual duty rates for exporters that so request, unless doing so would be unduly burdensome and prevent the timely completion of the investigation.

5.48. The United States explains that the USDOC limited its examination in the proceedings resulting in the anti-dumping orders at issue, and assigned the separate duty rate to exporters that passed the Separate Rate Test but were not chosen for individual examination.¹²⁶ The United States submits that it would also be reasonable to use the separate duty rates on record as the counterfactual duty rates for the exporters within the PRC-wide entity.¹²⁷ We recall that, under the Single Rate Presumption, the USDOC treats all exporters that did not pass the Separate Rate Test as a single PRC-wide entity and assigns them a single PRC-wide duty rate. In doing so, the USDOC does not provide these exporters with the opportunity to request individually calculated duty rates despite the USDOC's decision to limit its examination with regard to exporters that pass the Separate Rate Test.

5.49. We consider the United States' proposed counterfactual too speculative because it assumes that the exporters within the PRC-wide entity would necessarily be subject to the separate duty rate on record, had the USDOC ceased treating them as a single PRC-wide entity under the Single Rate Presumption. This approach ignores the fact that Article 6.10.2 of the Anti-Dumping Agreement provides the exporters that are not initially selected for individual examination with the right to request individual examination, and requires the investigating authority to conduct such an individual examination unless the authority finds that it would be unduly burdensome and prevent the timely completion of the investigation. In light of this provision, it would not be reasonable to assume that none of the exporters within the PRC-wide entity would have requested such an individual examination or that the USDOC would have been permitted to reject all of them by reason of the burdensome impact on the investigation. We also note that, in certain of the anti-dumping

¹²³ United States' response to Arbitrator question No. 55(b), paras. 33-35.

¹²⁴ Article 6.10 of the Anti-Dumping Agreement.

¹²⁵ Article 6.10.2 of the Anti-Dumping Agreement.

¹²⁶ As mentioned in fn 107 above, there is no separate duty rate on the record of three anti-dumping orders, namely *Iron Pipe Fittings*; *Residential Washers*; and *Steel Flat Products*, and the United States therefore proposes to use a proxy of 0.00% as the counterfactual duty rate. (United States' written submission, para. 76; and response to Arbitrator question No. 51, paras. 3-7).

¹²⁷ United States' response to Arbitrator question No. 3(b)(i), paras. 4-5 and 8-9.

proceedings at issue, the PRC-wide entity includes exporters that the USDOC initially chose for individual examination but subsequently included in the PRC-wide entity.¹²⁸ It would not be reasonable to assume that the USDOC could have assigned the separate duty rate to such exporters, which, initially, had been selected for individual examination. These considerations suggest that the use of the separate duty rates on record as the counterfactual for the exporters within the PRC-wide entity does not reflect a reasonable or plausible compliance scenario.

5.50. We also recall that, where an investigating authority has limited its examination to selected exporters, Article 9.4 of the Anti-Dumping Agreement requires that the duty rate assigned to exporters that were not chosen for individual examination not exceed the weighted average of the individual duty rates calculated for selected exporters, disregarding any zero or *de minimis* duty rates or duty rates based on facts available. We asked the United States to explain whether the separate duty rate in the United States' anti-dumping system corresponds to the duty rate set out in Article 9.4. We also asked the United States to explain whether the USDOC took into account the provisions of Article 9.4 in calculating the separate duty rates on the record of the anti-dumping orders at issue. The United States did not provide a clear answer to these questions but stated that "the USDOC generally calculates the separate duty rate based on the rates assigned to individually-examined respondents."¹²⁹ The United States acknowledges that the USDOC, in certain anti-dumping proceedings at issue, calculated the separate duty rates as an average of one or more individual duty rates based on adverse facts available.¹³⁰ The United States also acknowledges that the USDOC, in certain anti-dumping proceedings at issue, calculated the separate duty rates based on information provided by the domestic industry in the petition for initiation of an investigation, or based on duty rates calculated in prior anti-dumping proceedings.¹³¹ These explanations show that what is called "the separate duty rate" in the United States' anti-dumping system is not necessarily calculated pursuant to the provisions of Article 9.4 of the Anti-Dumping Agreement. In considering whether the use of the separate duty rates on record reflects a reasonable or plausible compliance scenario, we cannot disregard the fact that the United States itself does not purport that the USDOC calculated the separate duty rates pursuant to the provisions of Article 9.4.¹³² This further supports our view that the use of the separate duty rates on record as the counterfactual for the exporters within the PRC-wide entity does not reflect a reasonable or plausible compliance scenario.

5.51. When asked whether there are alternative duty rates, other than the separate duty rates, which could serve as a reasonable or plausible counterfactual for the exporters within the PRC-wide entity, the United States generally submits that there are no such alternatives.¹³³ China argues that it would be reasonable to use either withdrawal of the anti-dumping order, a 0.00% duty rate, or "the lowest dumping margin that at least has some basis in the record of each proceeding, but the parties agree is reasonable."¹³⁴ China provides a list of potential alternative duty rates, which are based on individual duty rates calculated for selected exporters during different time periods,

¹²⁸ See Panel Report, *US – Anti-Dumping Methodologies (China)*, para. 7.503.

¹²⁹ United States' response to Arbitrator question No. 52, para. 9.

¹³⁰ United States' response to Arbitrator question No. 53(a), para. 11; and comments on China's response to Arbitrator question No. 53(b), paras. 5-6. Like the United States, China also submits that the USDOC, in some of the anti-dumping orders at issue, calculated the separate duty rates on the basis of individual duty rates calculated based on adverse facts available. China further argues that the USDOC made improper use of adverse facts available in calculating the individual duty rates on which the separate duty rates were based. In support of its view, China refers to the Appellate Body Report in *US – Hot-Rolled Steel*. (China's written submission, paras. 220-228).

¹³¹ United States' response to Arbitrator question No. 52, para. 9.

¹³² We also note China's argument that the use of the separate duty rates on record as the counterfactual duty rates for the exporters within the PRC-wide entity would not be reasonable because such duty rates are WTO-inconsistent for reasons in addition to those we discussed in detail in paragraph 5.50. In this regard, China contends that some of the separate duty rates on record are tainted because they were calculated in proceedings where the USDOC imposed both anti-dumping and countervailing measures and failed to adjust the separate duty rates for domestic subsidies. In support of its view, China refers to the Appellate Body's report in *US – Countervailing and Anti-Dumping Measures (China)*. (China's written submission, paras. 229-230). China also contends that some of the separate duty rates on record are tainted by the USDOC's improper use of the WA-T methodology and zeroing. In support of its view, China refers to the Appellate Body's reports in *US – Washing Machines, US – Zeroing (Japan)*, and *US – Stainless Steel (Mexico)*. (China's written submission, paras. 231-234).

¹³³ United States' response to Arbitrator question No. 54(c), paras. 25-26. For three anti-dumping orders, the United States argues that it could increase the counterfactual duty rates by relying on either individual duty rates calculated for selected exporters or the separate duty rates calculated during the most recent administrative reviews. (*Ibid*).

¹³⁴ China's comments on the United States' response to Arbitrator question No. 54(d), para. 14.

separate duty rates calculated during different time periods, or averages thereof.¹³⁵ Each party criticizes the other's approach as selective and as either exaggerating or underestimating the level of nullification or impairment.¹³⁶ We recall that, in determining the appropriate counterfactual for the USDOC's use of the WA-T methodology with zeroing, we used alternative duty rates from the record that were specifically calculated by the USDOC for the exporters at issue in the relevant anti-dumping proceedings. However, the USDOC did not calculate such alternative duty rates for the exporters within the PRC-wide entity. In light of this, we cannot speculate on how the USDOC would have calculated the duty rates for the exporters within the PRC-wide entity, had they not been included in the PRC-wide entity and assigned the PRC-wide duty rate pursuant to the Single Rate Presumption. We therefore consider it reasonable to apply, as a proxy, a duty rate of 0.00% as the counterfactual for the exporters within the PRC-wide entity.

5.52. For these reasons, we consider that the use of a 0.00% duty rate as the counterfactual for the exporters within the PRC-wide entity in all anti-dumping orders at issue reflects a reasonable and plausible compliance scenario.

5.2.2.2 Separate opinion of one member of the Arbitrator

5.53. I generally agree with the majority that, for the purpose of arbitration proceedings under Article 22.6 of the DSU, a reasonable or plausible counterfactual should be one that, at least, is consistent with the covered agreements. I, however, disagree with the majority on how to assess whether a proposed counterfactual is consistent with the covered agreements. Specifically, in my view, when considering the possibility of taking into account potential inconsistencies with WTO obligations other than those that were found to have been violated in the original proceedings, particular and extra restraint should be exercised. Otherwise, the careful balance between, on the one hand, Articles 11 and 21.5 of the DSU and, on the other hand, Article 22.6 of the DSU may be disturbed. This difference in views necessarily leads me to reach conclusions different from those of the majority on two important issues related to the counterfactual adopted in these proceedings.

5.54. **The first issue** concerns the group of Chinese exporters within the PRC-wide entity to which the counterfactual duty will apply. In this regard, the United States divides the exporters within the PRC-wide entity into two groups, namely those for which there is evidence that they failed to cooperate and those for which there is no evidence that they failed to cooperate.¹³⁷ On this basis, the United States argues that the counterfactual duty should only apply to the latter group of exporters because the USDOC could legitimately continue assigning the former group of exporters duties on the basis of adverse facts available because they failed to cooperate.¹³⁸ China disagrees, arguing that for some of the exporters, for which the United States considers there is evidence that they failed to cooperate, the USDOC should not have applied facts available at all and for others it should have applied "neutral", as opposed to "adverse", facts available.¹³⁹

5.55. The majority has decided to apply the counterfactual duty to all exporters within the PRC-wide entity, expressing the view that in assessing the reasonableness or plausibility of the counterfactual, its consistency with the covered agreements should be taken into account. In the majority's view, this assessment should not be limited to those provisions of the covered agreements that formed the basis of the original panel's findings of violation.¹⁴⁰

5.56. I am fully aware that the adoption of a reasonable or plausible counterfactual in an arbitration proceeding under Article 22.6 is, by its very nature, based on a hypothetical. This is because such an arbitration proceeding is triggered by the fact that the original respondent failed to fully comply with the DSB recommendations and rulings in the original proceedings, and that the arbitrator acting pursuant to Article 22.6 is left to determine what would be a reasonable or plausible compliance scenario. Depending on the nature of the WTO-inconsistent measure, identifying such a counterfactual may not be overly complex. In this regard, I recall that in a number of past arbitration

¹³⁵ China's response to Arbitrator question No. 54(e), paras. 20-23; and China's Identification of Suitable Benchmarks for All Other Anti-Dumping Duty Rates, (Exhibit CHN-53).

¹³⁶ See China's comments on the United States' response to Arbitrator question No. 54(e), para. 17; and United States' comments on China's response to Arbitrator question No. 54(e), paras. 13-14.

¹³⁷ United States' written submission, paras. 40-41.

¹³⁸ United States' written submission, paras. 40-41.

¹³⁹ China's response to Arbitrator question No. 56, paras. 26-29.

¹⁴⁰ See para. 5.40 above.

proceedings, the arbitrators considered the withdrawal of the measure a reasonable or plausible compliance scenario, and the parties did not contest such an approach.¹⁴¹ The WTO-inconsistent measures at issue in these proceedings, however, are much more complex in nature and therefore the adoption of an appropriate counterfactual has proved to be more challenging compared with some of the past arbitration proceedings. Indeed, anti-dumping duties are adopted as a result of an investigative process involving not only strict procedural rules that have to be followed by the investigating authorities but also a host of rules that govern the substantive determinations. Thus, compared with most other measures, anti-dumping measures could potentially be inconsistent with many WTO obligations.

5.57. In the present proceedings, the majority took into account violations of the provisions of the Anti-Dumping Agreement other than those found by the DSB in the original proceedings, in considering whether the proposed counterfactual was reasonable or plausible. Specifically, the majority considered that it would be too speculative to assume that the USDOC could, pursuant to Article 6.8 and Annex II of the Anti-Dumping Agreement, continue applying the duty rates calculated on the basis of adverse facts available *vis-à-vis* the exporters for which, in the view of the United States, there is evidence that they failed to cooperate. On this basis, the majority concluded that the counterfactual duty rate should apply to the entirety of the exporters within the PRC-wide entity.¹⁴² I recall that in the original proceedings in this dispute, there was no finding of violation of Article 6.8 or Annex II of the Anti-Dumping Agreement.

5.58. I am of the view that the majority has not applied extra and particular restraint by taking into account the proposed counterfactual's inconsistency with WTO obligations other than those found to have been violated in the original proceedings. Therefore, I disagree with the majority's approach and consider that only the provisions forming the basis of the original panel's findings of violations should have been taken into account. In my view, the counterfactual duty should therefore have applied only to those exporters within the PRC-wide entity for which, in the view of the United States, there is no evidence that they failed to cooperate in the relevant investigations.

5.59. I conclude by noting that applying the counterfactual duty to all exporters within the PRC-wide entity, in my view, affects the level of nullification or impairment, and disregards the right of WTO Members, enshrined in Article VI of the GATT 1994, to offset and prevent injurious dumping.

5.60. **The second issue** concerns the rate of the counterfactual duty. I recall that the United States proposes to apply the separate duty rates on the record of the relevant anti-dumping orders as the counterfactual duty rate to the Chinese exporters within the PRC-wide entity for which, in the view of the United States, there is no evidence that they failed to cooperate.¹⁴³ China disagrees with this view, arguing that the separate duty rates are likely inconsistent with a range of WTO obligations.¹⁴⁴

5.61. Having concluded that the counterfactual duty rate should apply to all exporters within the PRC-wide entity, the majority considered that it would not be reasonable to assume that the USDOC could have refused to individually examine the exporters within the PRC-wide entity and assigned the separate duty rates to these exporters pursuant to Article 6.10.2 of the Anti-Dumping Agreement, nor to assume that such duty rates would be consistent with Article 9.4 of the Anti-Dumping Agreement.¹⁴⁵ Here too, in the original proceedings in this dispute, there was no finding of violation of any of these two provisions.

5.62. I am of the view that the majority did not apply extra and particular restraint by taking into account WTO obligations other than those that were found to have been violated in the original proceedings. Therefore, I disagree with the majority's approach and consider that only the provisions forming the basis of the original panel's findings of violation should have been taken into account. The counterfactual duty rate should therefore have been the separate duty rates on the record of the relevant anti-dumping orders, not the proxy of 0.00% applied by the majority. Here too,

¹⁴¹ See e.g. Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 38; *US – COOL (Article 22.6 – US)*, paras. 3.10-3.12; and *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 4.8-4.10.

¹⁴² See paras. 5.41-5.45 above.

¹⁴³ United States' written submission, paras. 40-41; and response to Arbitrator question No. 3(b)(i), paras. 4-5 and 8-9.

¹⁴⁴ China's written submission, paras. 220-238 (referring to Articles 2.4.2, 6.8, and 9.3 and Annex II of the Anti-Dumping Agreement and Article 19.3 of the Agreement on Subsidies and Countervailing Measures).

¹⁴⁵ See paras. 5.46-5.52 above.

I conclude by noting that applying a 0.00% counterfactual duty rate, rather than the separate duty rates, in my view, affects the level of nullification or impairment, and disregards the right of WTO Members, enshrined in Article VI of the GATT 1994, to offset and prevent injurious dumping.

5.3 Conclusion

5.63. For the reasons set out in the preceding sections, we will use the following counterfactual for the purpose of estimating the level of nullification or impairment: With respect to *Coated Paper*, we will use a 0.00% duty rate as the counterfactual for the exporter APP-China, for the exporters that receive the separate duty rate, and for the exporters within the PRC-wide entity. With respect to *OCTG*, we will use a [[***]]% duty rate as the counterfactual for the exporter TPCO and for the exporters that receive the separate duty rate, and we will use a 0.00% duty rate as the counterfactual for the exporters within the PRC-wide entity. With respect to *Steel Cylinders*, we will use a 0.00% duty rate as the counterfactual for the exporters that receive the separate duty rate and for the exporters within the PRC-wide duty entity. With respect to *Aluminum Extrusions, Bags, Diamond Sawblades, Furniture, OTR Tires, PET Film, Ribbons, Shrimp, Solar Panels, Wood Flooring, Copper Pipe and Tube, Iron Pipe Fittings, Passenger Vehicle and Light Truck Tires, Residential Washers, Sheet and Strip, Steel Flat Products, Steel Line Pipe, Steel Nails, Steel Pipe, Steel Products, Steel Standard, Line, and Pressure Pipe, and Steel Wire Rod*, we will use a 0.00% duty rate as the counterfactual for all of the exporters within the PRC-wide entity. We will maintain all other duty rates imposed under the anti-dumping orders at issue, without any modification.

6 ARBITRATOR'S DETERMINATION OF THE APPROPRIATE METHODOLOGY FOR ESTIMATING THE LEVEL OF NULLIFICATION OR IMPAIRMENT

6.1. In the section above, we have determined the appropriate counterfactual for the United States' compliance with the DSB recommendations and rulings by the expiry of the reasonable period of time. As explained in detail in paragraph 5.63, we use, as the counterfactual, the reduction of the duty rates that were based on the USDOC's WTO-inconsistent use of the WA-T methodology with zeroing and the Single Rate Presumption in the anti-dumping orders at issue.

6.2. We now turn to determine the appropriate methodology for estimating the level of nullification or impairment by calculating what would have happened, in terms of trade flows, had the United States complied with the DSB recommendations and rulings by the expiry of the reasonable period of time, in the manner reflected in the counterfactual. In this regard, we will first assess the calculation methodology that China proposes. Should we find that this calculation methodology is not appropriate for estimating the level of nullification or impairment, we will proceed to determine an alternative calculation methodology.

6.1 Assessment of China's proposed calculation methodology

6.3. China proposes to use the difference-in-difference (DID) tabular approach to estimate the value of imports from China that would have occurred in 2017 but for the United States' continued imposition of the anti-dumping orders at issue.¹⁴⁶ As described in section 3 above, China has excluded *Aluminum Extrusions* from its calculations and provides calculations concerning the remaining 24 anti-dumping orders at issue.¹⁴⁷

6.1.1 China's proposed DID tabular approach

6.4. Generally, the DID tabular approach estimates the impact of an anti-dumping order by comparing: (i) the evolution of US imports from China subject to the anti-dumping order, defined as "the treatment group", between the period prior to the imposition of the order and the year 2017 with (ii) the evolution of US imports from a group of countries not subject to anti-dumping orders on the product at issue, defined as "the comparison group", between the period prior to the imposition of the order and the year 2017.¹⁴⁸ Using the evolution of the US imports from the

¹⁴⁶ China's methodology paper, paras. 3 and 27-35.

¹⁴⁷ As explained above, China bases its request for suspension in the amount of USD 7.043 billion only on 12 anti-dumping orders covered by the original panel's "as applied" findings of violation, but argues that 12 additional anti-dumping orders covered by the original panel's "as such" findings of violation should be added if the Arbitrator were to reject or lower China's estimated level of nullification or impairment.

¹⁴⁸ China's methodology paper, paras. 31-33 and 74-75.

comparison group as a proxy, the DID tabular approach then estimates the counterfactual value of US imports from China in 2017, had it not been subject to the anti-dumping order. The impact of the anti-dumping order on US imports from China is the difference between the observed, actual 2017 value of US imports from China and the estimated, counterfactual value of US imports from China in 2017. This amount corresponds to the level of nullification or impairment concerning that anti-dumping order.¹⁴⁹

6.5. As shown in Table 1, to calculate the level of nullification or impairment, the DID tabular approach requires four data points: (i) the value of US imports from China in the period prior to the imposition of the anti-dumping order¹⁵⁰; (ii) the value of US imports from China in 2017¹⁵¹; (iii) the value of US imports from the comparison group in the period prior to the imposition of the anti-dumping order; and (iv) the value of US imports from the comparison group in 2017.

Table 1: General DID tabular approach

	Period prior to the imposition of the anti-dumping order	2017	Difference
US imports from China subject to anti-dumping order (treatment group)	CHN_{preAD}	CHN_{AD}	$CHN_{AD} - CHN_{preAD}$
US imports from a group of countries not subject to an anti-dumping order on the same product (comparison group)	CG_{preAD}	CG_{AD}	$CG_{AD} - CG_{preAD}$
Difference in difference i.e. level of nullification or impairment			$-(CHN_{AD} - CHN_{preAD}) - (CG_{AD} - CG_{preAD})$

6.6. In estimating the level of nullification or impairment concerning the anti-dumping orders at issue, China uses the DID tabular approach to conduct several calculations under different assumptions, and thus provides several estimates to support its request for authorization to suspend concessions in the amount of USD 7.043 billion.

6.7. First, China acknowledges that it must apply the DID tabular approach for the anti-dumping orders at issue in a manner that meets the so-called parallel trends assumption, meaning that absent the imposition of the anti-dumping orders, the evolution of US imports from China and from the comparison group would have followed the same trends.¹⁵² Given the importance of the parallel trends assumption for the DID tabular approach, China proposes to apply the DID tabular approach for the anti-dumping orders at issue using different comparison groups.¹⁵³ In addition, China proposes to use different metrics of analysis.¹⁵⁴

6.8. With respect to the comparison group, China uses two definitions: (i) a "non-subject countries" group comprising exporters of the product from countries not subject to anti-dumping orders; and (ii) an "all countries" group comprising exporters from all countries, including China, regardless of whether they are subject to anti-dumping orders.¹⁵⁵ China claims that the "all countries" group has the advantage of controlling for substitution among exporters from different countries. If imports from some countries increase because exporters from China or other countries are now shut out of the market due to the anti-dumping orders, that increase is offset by the decrease in imports from

¹⁴⁹ China's methodology paper, para. 36; Difference in Difference Estimates (HS10) for 13 "As Applied" Cases, (Exhibit CHN-5); Difference in Difference Estimates (HS10) for 12 "As Such" Examples, (Exhibit CHN-13); and China's Revised Estimates of Nullification or Impairment, (Exhibit CHN-21).

¹⁵⁰ Depending on the timing of the imposition of the anti-dumping order, China proposes to use, as the period prior to the imposition of the order, a period of either three or four years, which might or might not overlap with the USITC's period of investigation. (China's methodology paper, para. 107). Thus, China uses the average trade value of these three or four years. (China's methodology paper, para. 75).

¹⁵¹ As explained in section 4 above, China uses calendar year 2017 as the reference period for determining the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time.

¹⁵² China's methodology paper, paras. 40 and 67-68.

¹⁵³ China's methodology paper, paras. 70-71.

¹⁵⁴ China's methodology paper, paras. 97-98.

¹⁵⁵ China's methodology paper, para. 74.

China.¹⁵⁶ China claims that none of the comparison groups can, however, control for substitution from exporters to domestic producers caused by the anti-dumping orders, which may depress total imports from all countries below what otherwise would exist. China is of the view that the DID tabular approach is therefore inherently conservative and underestimates the true level of nullification or impairment.¹⁵⁷

6.9. With respect to the metrics of analysis, China proposes to apply the DID tabular approach at two metrics of analysis, i.e. a level of trade metric and a growth of trade metric.¹⁵⁸ Under the level of trade metric, the calculation is based on the absolute changes in the value of US imports from China and from the comparison group, as described in paragraph 6.4 above.¹⁵⁹ Under the growth of trade metric, the percentage change in the value of US imports from the comparison group is applied to the value of US imports from China, and that value is compared with the value of actual imports from China in 2017.¹⁶⁰ According to China, one metric is not necessarily better than the other, because the level of trade and the growth of trade metrics are simply different ways to approach the issue. While the standard approach is to implement the DID tabular approach using the level of trade metric, China argues that this approach has limitations when applied to longer periods of time or broader categories of products, and when the level of trade or capacity of the comparison group differs significantly from that of China.¹⁶¹ Therefore, China proposes to use the growth of trade metric as well as the level of trade metric.¹⁶²

6.10. Accordingly, China applies the DID tabular approach using both the level of trade metric and the growth of trade metric for both the "non-subject countries" comparison group and the "all countries" comparison group for each anti-dumping order at issue. This approach yields four calculation results for each order. China then calculates the average of the four calculation results to estimate the level of nullification or impairment for each order. China conducts all of these calculations at Harmonized System (HS) tariff numbers at the ten-digit level.¹⁶³ All of the calculation results, and the average thereof, are reproduced in Table 2 below.

6.11. Second, to demonstrate that its estimated level of nullification or impairment is accurate, China conducts robustness checks. More particularly, China applies the DID tabular approach using the growth of trade metric for a broader category of products, by using more aggregated data at HS-6, HS-4, and HS-2 levels. China also produces a minimum estimate for each anti-dumping order by picking the lowest of the four calculation results described in the preceding paragraph. China uses the robustness checks to demonstrate that the estimated level of nullification or impairment does not change significantly when the definition of the product changes, or when using the minimum estimate.¹⁶⁴ China also provides alternative estimates that take into account the effect of countervailing duties imposed on some of the products at issue.¹⁶⁵ All of the calculation results yielded under China's robustness checks are reproduced in Table 2 below.

¹⁵⁶ China's methodology paper, para. 84.

¹⁵⁷ China's methodology paper, para. 85.

¹⁵⁸ China's methodology paper, para. 98.

¹⁵⁹ China's methodology paper, paras. 96-97.

¹⁶⁰ China notes that the growth of trade metric is the same as applying the DID tabular approach using the logarithmic value of trade. (China's methodology paper, fn 46).

¹⁶¹ China's methodology paper, para. 97.

¹⁶² China's methodology paper, para. 98.

¹⁶³ China's methodology paper, paras. 6 and 117.

¹⁶⁴ China's methodology paper, paras. 138-139.

¹⁶⁵ China's methodology paper, paras. 124-136.

Table 2: Results yielded under China's proposed DID tabular approach

	Calculation results (million USD)							Robustness checks (million USD)				
	HS-10							HS-10	HS-6	HS-4	HS-2	
	Non-Subj		All		Non-Subj and All			Non-Subj and All	All			
	Level-DID	Growth-DID	Level-DID	Growth-DID	Average level-DID	Average growth-DID	Average of level- and growth-DID	Minimum of level- and growth-DID	CVD adjusted average of level- and growth-DID	Growth-DID	Growth - DID	Growth - DID
	Including Aluminum Extrusions							Including Aluminum Extrusions				
13 "as applied" anti-dumping orders	33,025	21,843	54,445	12,329	43,734	17,087	30,410	12,092	17,226	6,013	5,967	6,631
12 "as such" anti-dumping orders	9,242	9,221	5,095	4,403	7,168	6,812	6,990	3,449	5,003	4,447	4,514	4,552
Total	42,267	31,064	59,540	16,732	50,902	23,899	37,400	15,541	22,229	10,460	10,481	11,183
	Excluding Aluminum Extrusions							Excluding Aluminum Extrusions				
12 "as applied" anti-dumping orders	10,421	8,361	9,264	4,831	9,842	6,597	8,219	4,594	7,462	6,013	5,967	6,631
12 "as such" anti-dumping orders	9,242	9,221	5,095	4,403	7,168	6,812	6,990	3,449	5,003	4,447	4,514	4,552
Total	19,663	17,582	14,359	9,234	17,010	13,409	15,209	8,043	12,465	10,460	10,481	11,183

Sources: China's Revised Estimates of Nullification or Impairment, (Exhibit CHN-21); and China's response to Arbitrator question No. 28, para. 163.

Notes: "Non-subj" refers to the "non-subject countries" comparison group, while "All" refers to the "all countries" comparison group. "Level-DID" refers to the DID tabular approach based on a level of trade metric, while "Growth-DID" refers to the DID tabular approach based on a growth of trade metric. The first part of the table reports China's calculation results including *Aluminum Extrusions*, the second part reports China's calculation results excluding *Aluminum Extrusions*.

6.12. Based on its proposed DID tabular approach, China estimates that the total level of nullification or impairment is equal to USD 8.219 billion for the 12 of the anti-dumping orders covered by the "as applied" findings of violation and USD 6.990 billion for the 12 anti-dumping orders covered by the "as such" findings of violation.¹⁶⁶ As explained in section 3 above, China requests authorization to suspend concessions in the amount of USD 7.043 billion, and bases its request only on 12 of the anti-dumping orders covered by the "as applied" findings of violation.¹⁶⁷ China argues that, in case the Arbitrator lowers the amount of nullification or impairment for the "as applied" findings of violations, the Arbitrator should "add to the lowered estimate" the level of nullification or impairment concerning the "as such" findings of violation.¹⁶⁸

6.1.2 China's proposed adjustments to the DID tabular approach

6.13. As explained above, China's proposed DID tabular approach estimates the value of US imports from China that would have occurred in 2017, but for the United States' continued imposition of the anti-dumping orders at issue. In other words, China's proposed calculation methodology presupposes the use of China's proposed counterfactual, that is the withdrawal of the entirety of the anti-dumping orders at issue. We have, in section 5 above, rejected China's proposed counterfactual and determined an alternative counterfactual, namely, the reduction of the anti-dumping duties that were calculated using the WTO-inconsistent WA-T methodology with zeroing and the Single Rate Presumption.

6.14. In response to a question from the Arbitrator, China argues that its proposed calculation methodology can be used even if the Arbitrator were to choose a counterfactual other than the one that China proposes. In this context, China proposes two types of adjustments.

6.15. First, China proposes an adjustment to account for a counterfactual where only the anti-dumping duties imposed on exporters within the PRC-wide entity are withdrawn, whereas all other anti-dumping duties at issue remain. In this regard, China proposes to adjust downward the estimated level of nullification or impairment in proportion to the share of the PRC-wide entity in US imports from China during the original period of investigation. On this basis, China estimates a total adjusted level of nullification or impairment of USD 5.6 billion for all 24 anti-dumping orders.¹⁶⁹

6.16. Second, China proposes adjustments to account for a counterfactual, under which the anti-dumping duties are only modified rather than withdrawn. In this regard, China proposes to apply a 10% reduction to its estimated level of nullification or impairment for anti-dumping orders where the counterfactual duty rate is lower than 10%. For the anti-dumping orders where the counterfactual duty rate is higher than 10%, China proposes to adjust downward the estimated level of nullification or impairment in proportion to the counterfactual duty rate. On this basis, China estimates a total adjusted level of nullification or impairment of USD 12.1 billion for all 24 anti-dumping orders.¹⁷⁰

6.1.3 Assessment by the Arbitrator

6.17. We recall that the DID tabular approach compares the evolution of US imports from China with the evolution of US imports from the comparison groups. It uses the latter to estimate a counterfactual value of US imports from China, had it not been for the continued imposition of the anti-dumping orders at issue, and to estimate the level of nullification or impairment. More particularly, the level of nullification or impairment consists of the difference between the actual value of US imports from China in 2017 and the estimated, counterfactual value of US imports from China in 2017. Therefore, the appropriateness of the DID tabular approach hinges on the choice of the comparison groups. Inherently, the DID tabular approach can only be considered a valid calculation methodology if the evolution of US imports from China would have been similar to the

¹⁶⁶ China's written submission, para. 105. This figure excludes *Aluminum Extrusions*.

¹⁶⁷ China's methodology paper, paras. 166-168.

¹⁶⁸ China's methodology paper, para. 173.

¹⁶⁹ China's opening statement at meeting of the Arbitrator, para. 49; and response to Arbitrator question No. 77, paras. 103-107; and China's Adjusted Estimates of Nullification or Impairment To Take Into Account Only PRC-Wide Entity Exports, (Exhibit CHN-49 (BCI)).

¹⁷⁰ China's response to Arbitrator question No. 76, paras. 92-98; and China's Adjusted Estimates of Nullification or Impairment To Take Into Account Changing Anti-Dumping Duty Rates, (Exhibit CHN-48).

evolution of US imports from the countries in the comparison groups, in the absence of the anti-dumping orders.

6.18. As explained above, China uses two different comparison groups, namely a "non-subject countries" group comprising exporters of the product from countries not subject to anti-dumping orders; and an "all countries" group comprising exporters from all countries, including China, regardless of whether they are subject to anti-dumping orders.¹⁷¹ China estimates the level of nullification or impairment using an average of the calculations conducted for each comparison group. The United States is of the view that the comparison groups used by China fail to meet three key assumptions, namely (i) the parallel trends assumption; (ii) the stability assumption, and (iii) the uniformity assumption.¹⁷² We now turn to examine whether these three assumptions are met.

6.19. **The parallel trends assumption** requires that the trends in both US imports from China and US imports from the comparison groups would be the same in the absence of the anti-dumping orders.¹⁷³ In the United States' view, neither of the two comparison groups chosen by China meets this assumption.¹⁷⁴ China argues that it cannot perform a statistical analysis demonstrating that US imports from China and from the comparison groups satisfy the parallel trends assumption because it does not have the necessary publicly available data, due to regular changes in the US HTS system.¹⁷⁵ In any event, China contends that a statistical analysis is not necessary to conclude what is common sense, namely, that the evolution of imports from other suppliers in the market is informative of what the evolution of imports from China would have been but for the continued imposition of the anti-dumping orders at issue.¹⁷⁶

6.20. Both parties agree on the relevance of the parallel trends assumption.¹⁷⁷ We too consider that this assumption is the most critical assumption to ensure the validity of China's DID tabular approach and therefore its estimated level of nullification or impairment. While China asserts that it made a considerable effort to demonstrate that the parallel trends assumption holds for its comparison groups¹⁷⁸, China does not provide any evidence to prove that the parallel trends assumption holds. Instead, China provides calculations using both the level of trade metric and the growth of trade metric for its two chosen comparison groups and uses the average of these calculations, arguing that this renders its estimated level of nullification or impairment accurate. Further, China points out that it has conducted robustness checks by applying its DID tabular approach to a broader category of products using data at higher aggregated HS levels; by applying its DID tabular approach to calculate minimum estimates; and by applying its DID tabular approach to calculate estimates which take into account the effect of countervailing duties imposed on some of the products at issue.¹⁷⁹ In China's view, the results obtained from its robustness checks are similar to its estimated level of nullification or impairment, thus confirming the reasonableness of the latter.¹⁸⁰ According to China, its flexible approach provides the Arbitrator with a set of estimates from which it can "mix and match" as it finds appropriate.¹⁸¹

6.21. The United States argues that China's use of an average of estimates does not provide an accurate level of nullification or impairment, since all of these estimates are calculated using China's flawed DID tabular approach.¹⁸² Similarly, the United States argues that China did not provide valid robustness checks because it should not have used its own DID tabular approach, but rather a variety of methods to estimate the level of nullification or impairment under different but plausible

¹⁷¹ China's methodology paper, para. 74.

¹⁷² United States' written submission, paras. 114 and 129.

¹⁷³ United States' written submission, para. 132.

¹⁷⁴ Further, the United States argues that the DID tabular approach requires a definition of the treatment and comparison groups that closely approximates conditions in which the treatment, i.e. the anti-dumping duties, can be considered randomly assigned relative to a comparison group that faces identical conditions except for the treatment. The United States is of the view that it is incorrect to designate the "non-subject countries" group as a comparison group because the treatment cannot be thought of as being applied randomly. (United States' written submission, para. 118).

¹⁷⁵ China's response to Arbitrator question No. 19(c), para. 93.

¹⁷⁶ China's response to Arbitrator question No. 19(c), para. 92.

¹⁷⁷ China's methodology paper, para. 40; and United States' written submission, paras. 129-130.

¹⁷⁸ China's written submission, para. 103

¹⁷⁹ China's written submission, paras. 106-108.

¹⁸⁰ China's response to Arbitrator question No. 21, paras. 112-121.

¹⁸¹ China's response to Arbitrator question No. 21, para. 113.

¹⁸² United States' written submission, para. 154.

assumptions.¹⁸³ Furthermore, the United States asserts that many of the results yielded under China's robustness checks are not similar to China's estimated level of nullification or impairment, and that China does not follow any standard statistical procedure to demonstrate that the differences between the results yielded under the robustness checks and the estimated level of nullification or impairment are approximately zero.¹⁸⁴

6.22. We are not convinced by China's approach. The use of an average of different estimates based on different comparison groups does not, in and of itself, demonstrate that these comparison groups meet the parallel trends assumption. Nor does the use of an average mean that the estimated level of nullification or impairment is accurate, especially when one or more comparison groups do not meet the parallel trends assumption. Similarly, since China's robustness checks are also conducted based on the same comparison groups, we do not consider that these robustness checks serve to demonstrate that these comparison groups meet the parallel trends assumption. We further note that China claims that its estimated level of nullification or impairment of USD 7.043 billion is robust as it is within the same range as the results yielded under the robustness checks.¹⁸⁵ However, as demonstrated in Table 2, the robustness checks conducted for the anti-dumping orders underlying China's estimate yield results ranging from USD 4.6 billion to USD 7.5 billion. China has not demonstrated that the differences between the estimated level of nullification or impairment and the results yielded under the robustness checks are insignificant. We therefore consider that these results vary significantly, which undermines China's claim of robustness.

6.23. Although there is no formal statistical test to assess the validity of the parallel trends assumption, we note suggestions from literature to use, as a preliminary exercise, a graphical comparison of the trends in US imports from China and the trends in US imports from the comparison groups before the imposition of the anti-dumping orders.¹⁸⁶ This would provide an indication of whether US imports from all groups have followed similar trends in the past. China does not provide any graphical analysis because of "serious challenge[s] due to regular changes in the US HTS system".¹⁸⁷ Yet, the United States provides two illustrative graphical comparison examples for *Steel Cylinders* and *Coated Paper*, suggesting that the parallel trends assumption does not hold for the level of trade metrics nor the growth of trade metrics.¹⁸⁸ We are therefore of the view that the comparison groups that China proposes do not meet the parallel trends assumption.

6.24. **The stability assumption** requires that (i) the products covered by US imports from China and from the comparison groups must remain the same over time; and (ii) US imports from the comparison groups cannot be affected by spillover effects caused by the anti-dumping orders.¹⁸⁹ According to the United States, this assumption is not met because the product scope of some of the anti-dumping orders has changed between the imposition of the order and 2017, due to changes in the underlying set of HTS codes.¹⁹⁰ The United States further claims that China's approach invalidates the stability assumption because the anti-dumping orders have had spillover effects on the comparison groups by increasing US imports from countries not subject to the orders.¹⁹¹ China argues that the stability assumption is not relevant to its DID tabular approach¹⁹², and submits that

¹⁸³ United States' written submission, para. 151. The United States also argues that China's robustness checks are not valid because there is no evidence that US imports of a given category of products at HS-10 level should be expected to follow the same trends as US imports of a broader category of products at HS-6, HS-4, or HS-2 levels. (United States written submission, paras. 142-148).

¹⁸⁴ United States' written submission, para. 153.

¹⁸⁵ China's methodology paper, paras. 137-144.

¹⁸⁶ See Presentation of Difference-in-Difference Estimation, Columbia University, (Exhibit USA-20); and J. Angrist, J. David, and J. Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, (Princeton University Press, 2009), (Exhibit USA-23).

¹⁸⁷ China's response to Arbitrator question No. 19(c), para. 93.

¹⁸⁸ See United States' written submission, figures 2 and 3; and Annex D-1.

¹⁸⁹ United States' written submission, para. 133; and D. Rubin, "Assignment to Treatment Group on the Basis of a Covariate" (1977), Vol. 2, No. 1, *Journal of Educational Statistics*, pp. 1-26.

¹⁹⁰ United States' written submission, para. 133.

¹⁹¹ United States' written submission, para. 134. The United States claims that violations of the parallel trends and stability assumptions in China's DID tabular approach manifest, in part, as omitted variables bias in the value of estimates of nullification or impairment. (United States' response to Arbitrator question No. 17, para. 55).

¹⁹² China's written submission, paras. 119-120.

it made a significant effort to produce a series of estimates of the level of nullification or impairment under different assumptions.¹⁹³

6.25. We note that, contrary to China's assertion, the stability assumption is referenced in academic literature as a necessary requirement for using the DID tabular approach.¹⁹⁴ We also consider this assumption to be relevant. As a mathematical matter, the DID tabular approach does not allow a valid comparison between the evolution of US imports from China and the evolution of US imports from the comparison groups if the scope of the imported products changes over time. Furthermore, if the evolution of US imports from the comparison groups is affected by spillover effects from the anti-dumping orders imposed on US imports from China, then the evolution of US imports from the comparison groups cannot reasonably be used as a proxy to estimate how US imports from China would have developed, had it not been for the continued imposition of the anti-dumping orders.

6.26. We question whether the stability assumption holds under China's DID tabular approach. As both parties point out, the product scope of some anti-dumping orders in terms of HTS codes has changed between the initial period and 2017. More importantly, we cannot rule out that US imports from countries not subject to anti-dumping orders, which form part of both comparison groups proposed by China, are affected by the anti-dumping orders imposed on US imports from China and other countries. China's failure to take into account such indirect impact would taint the validity of the comparison groups and thus yield biased estimates of nullification or impairment.

6.27. **The uniformity assumption** requires that the level of the anti-dumping duties and lack thereof be the same for US imports from China and from the comparison group, respectively.¹⁹⁵ In other words, under the DID tabular approach proposed by China, all exporters within the treatment group must be subject to the same level of anti-dumping duties, and all exporters within the comparison groups must be subject to no anti-dumping duties at all. The United States argues that this assumption does not hold under China's approach because the levels of the anti-dumping duties vary for different exporters.¹⁹⁶ The United States is further of the view that the "all countries" group is an invalid comparison group because it includes US imports from China and from other countries subject to anti-dumping orders.¹⁹⁷ China argues that the uniformity assumption is not relevant to its DID tabular approach¹⁹⁸, and submits that it made a significant effort to produce a series of estimates of the level of nullification or impairment under different assumptions.¹⁹⁹

6.28. We note that, contrary to China's assertion, the uniformity assumption is relevant. The DID tabular approach proposed by China only considers the case of a single level of anti-dumping duties or lack thereof. In other words, it cannot take into account the effect of different levels of anti-dumping duties.²⁰⁰

6.29. In our view, the uniformity assumption does not hold under China's DID tabular approach because, for all of the anti-dumping orders at issue, different duty rates are applied to US imports from different Chinese exporters. Therefore, not all US imports from China are subject to the same level of anti-dumping duties. Moreover, the uniformity assumption also requires that all exporters in the comparison groups be uniformly not subject to anti-dumping duties at all. As explained above, the "all countries" comparison group includes US imports from China and other countries subject to anti-dumping orders. This contradicts the requirement that a valid comparison group must not be

¹⁹³ China's written submission, para. 103.

¹⁹⁴ M. Lechner, "The estimation of causal effects by difference-in-difference methods" (2011), Vol. 4, No. 3, *Foundations and Trends in Econometrics*, pp. 165-224.

¹⁹⁵ United States' written submission, para. 135.

¹⁹⁶ United States' written submission, para. 135.

¹⁹⁷ United States' written submission, para. 140.

¹⁹⁸ China's written submission, paras. 119-120.

¹⁹⁹ China's written submission, para. 119.

²⁰⁰ The DID tabular approach can accommodate different levels of anti-dumping duties provided that it is demonstrated that the average outcomes for all exporters within the treatment group would have followed parallel trends in the absence of the treatment. (See A. Abadie, "Semiparametric Difference-in-Differences Estimators" (2005), Vol. 72, No. 1, *The Review of Economic Studies*, pp. 1-19; and B. Callaway and P. Sant'Anna, "Difference-in-differences with multiple time periods", Working Paper (2019)). As discussed above, we are not convinced that the parallel trends assumption holds under China's DID tabular approach.

affected by the treatment, i.e. the anti-dumping orders²⁰¹, and we therefore do not consider the "all countries" comparison group valid.

6.30. As described in the preceding paragraphs, we do not consider that the parallel trends assumption, the stability assumption, or the uniformity assumption hold for the comparison groups chosen by China. For these reasons, we are not convinced that the evolution of US imports from the chosen comparison groups would have been similar to the evolution of US imports from China, in the absence of the anti-dumping orders. Since the DID tabular approach estimates the level of nullification or impairment by estimating the evolution of US imports from China using the evolution of US imports from the comparison groups as a proxy, China's choice of comparison groups renders its use of the DID tabular approach unsuitable.

6.31. The United States has advanced additional arguments against China's proposed DID tabular approach. First, the United States argues that China should not have used a DID tabular approach but rather a DID regression approach, which can control not just for the anti-dumping orders but also for other factors that impact US imports from China differently than US imports from the comparison groups.²⁰² Second, the United States argues that China's use of the growth of trade metric in the context of its DID tabular approach is inappropriate, and that the growth of trade metric and the level of trade metric are mutually exclusive because the parallel trends assumption can only hold for one metric for any given product, not both. This means that either the estimate based on the growth of trade metric or the estimate based on the level of trade metric must be biased, in turn rendering the average of the two biased.²⁰³ Third, the United States argues that the DID tabular approach can only estimate the level of nullification or impairment based on a counterfactual under which the entirety of the anti-dumping orders are withdrawn. According to the United States, the adjustments proposed by China are seriously flawed, not consistent with China's own methodology, and not based on economic theory.²⁰⁴

6.32. We note that, like the DID tabular approach itself, the United States' additional arguments hinge upon the validity of the parallel trends assumption, the stability assumption, and the uniformity assumption. For instance, the use of a DID regression approach rather than a DID tabular approach or the use of either a growth of trade metric or a level of trade metric both require that these three assumptions hold. We have already determined that none of these three assumptions hold for China's DID tabular approach, and found, on this basis, that China's proposed calculation methodology is not appropriate. In light of this, we do not consider it necessary or useful to address the United States' additional arguments concerning that methodology.

6.33. For the reasons set out above, we conclude that China's proposed DID tabular approach is not an appropriate calculation methodology for estimating the level of nullification or impairment. In order to fulfil our mandate, we therefore proceed to determine an alternative calculation methodology.

6.2 Determination of an alternative calculation methodology

6.34. Having found that China's proposed calculation methodology is not an appropriate one, we proceed to determine an alternative calculation methodology for estimating the level of nullification or impairment. In this regard, we find it useful to begin with an assessment of the calculation methodologies the United States has proposed and consider whether those can provide the basis for our estimation.

6.2.1 The United States' proposed calculation methodologies

6.35. Unlike China, which proposes a single calculation methodology to estimate the level of nullification or impairment for all anti-dumping orders at issue, the United States proposes to use two different calculation methodologies to estimate the level of nullification or impairment:

²⁰¹ See M. Lechner, "The estimation of causal effects by difference-in-difference methods" (2011), Vol. 4, No. 3, *Foundations and Trends in Econometrics*, pp. 165-224.

²⁰² United States' written submission, paras. 120-121 and 148; and response to Arbitrator question No. 17, paras. 66-67.

²⁰³ United States' written submission, para. 127; and response to Arbitrator question No. 17, paras. 79-83.

²⁰⁴ United States' comments on China's response to Arbitrator No. 76, paras. 78-87.

(i) a formula-based approach on market shares (formula-based approach); and (ii) an Armington imperfect substitutes partial equilibrium model (Armington model).

6.36. The United States determines whether to apply the formula-based approach or the Armington model on the basis of a threshold calculation: If the share of the value of US imports from exporters assigned WTO-inconsistent anti-dumping duties over the total value of US imports from China in 2017 is smaller than 1%, the United States uses the formula-based approach, otherwise it uses the Armington model.²⁰⁵

6.2.1.1 The formula-based approach

6.37. As explained above, the United States proposes a formula-based approach if the share of US imports from exporters assigned WTO-inconsistent anti-dumping duties over the total value of US imports from China in 2017 is smaller than 1%.²⁰⁶

6.38. The formula-based approach calculates the share of exporters subject to WTO-inconsistent anti-dumping duties in the total value of US imports from China during the period of investigation, and applies that share to the total value of US imports of that product from China in 2017, to determine a counterfactual value of US imports from those exporters in 2017.²⁰⁷ It then subtracts the actual 2017 value of imports from the counterfactual 2017 value of imports to estimate the level of nullification or impairment.²⁰⁸

6.39. According to the United States, the formula-based approach overestimates the level of nullification or impairment because it assumes that exporters subject to WTO-inconsistent anti-dumping duties would retain the same share of the total value of US imports from China in 2017 as in the period of investigation even though other Chinese exporters assigned a lower duty rate would be more competitive and would therefore capture a higher market share.²⁰⁹

6.2.1.2 The Armington model

6.40. The Armington model is a partial equilibrium economic model that analyses a single market of a given product, ignoring linkages with other markets because those linkages are presumed to be negligible. The Armington model that the United States proposes assumes that, in the US market, the product at issue is differentiated by source countries and that consumers view products from different countries as imperfect substitutes. Imperfect substitutes are products with fairly similar but not identical attributes, which consumers do not necessarily substitute with one another when their relative prices change.²¹⁰

6.41. The version of the Armington model proposed by the United States contains four different varieties of the product at issue originating in four different sources: (i) variety produced in the United States (*us*); (ii) variety imported from the Chinese exporters subject to WTO-inconsistent anti-dumping duties (*prc*); (iii) variety imported from the remaining Chinese exporters (*roic*); and (iv) variety imported from exporters from the rest of the world (*row*).²¹¹ In more technical terms, the Armington model is defined by a set of equations representing the supply and the demand of each of the four varieties (equations 1 to 4) as well as an aggregate product demand (equation 5) and price index (equation 6).²¹²

²⁰⁵ United States' written submission, para. 78.

²⁰⁶ United States' written submission, para. 87.

²⁰⁷ United States' written submission, paras. 10 and 88.

²⁰⁸ United States' response to Arbitrator question No. 40, para. 155.

²⁰⁹ United States' written submission, para. 95.

²¹⁰ Paul S. Armington, *A Theory of Demand for Products Distinguished by Place of Production*, Vol. 1, No.1, International Monetary Fund (March 1969), (Exhibit USA-68).

²¹¹ United States' written submission, para. 63.

²¹² United States' written submission, para. 71.

US domestic production market equilibrium:
$$a_{us} (p_{us})^{\varepsilon_{us}} = Q b_{us} \sigma \left(\frac{p_{us}}{P}\right)^{-\sigma} \quad (1)$$

US imports from Chinese exporters subject to WTO-inconsistent anti-dumping duties market equilibrium:
$$a_{prc} \left(\frac{p_{prc}}{t_{prc}}\right)^{\varepsilon_s} = Q b_{prc} \sigma \left(\frac{p_{prc}}{P}\right)^{-\sigma} \quad (2)$$

US imports from the rest of China market equilibrium:
$$a_{roc} (p_{roc})^{\varepsilon_{roc}} = Q b_{roc} \sigma \left(\frac{p_{roc}}{P}\right)^{-\sigma} \quad (3)$$

US imports from the rest of the world market equilibrium:
$$a_{row} (p_{row})^{\varepsilon_{row}} = Q b_{row} \sigma \left(\frac{p_{row}}{P}\right)^{-\sigma} \quad (4)$$

US aggregate market equilibrium:
$$Q = Y_0 P^\theta \quad (5)$$

US price index
$$P = (b_{us}^\sigma p_{us}^{1-\sigma} + b_{prc}^\sigma p_{prc}^{1-\sigma} + b_{roc}^\sigma p_{roc}^{1-\sigma} + b_{row}^\sigma p_{row}^{1-\sigma})^{\frac{1}{1-\sigma}} \quad (6)$$

6.42. The market equilibrium determines the prices (p_{us} , p_{prc} , p_{roc} and p_{row}) for which the quantities demanded are simultaneously equal to the quantities supplied in each of the four variety markets, subject to the constraint that the US aggregate industry output quantity (Q) is equal to the US aggregate demand evaluated at the price index of the product (P) and for a given initial equilibrium level of aggregate industry expenditure (Y_0). The market equilibrium can be obtained by solving the set of equations either through a numerical iterative solution or a linear approximation. The United States solves the Armington model through numerical iterations.²¹³

6.43. The United States proposes to use the Armington model to simulate the impact of reducing the duty rates applied to US imports from Chinese exporters subject to WTO-inconsistent anti-dumping duties (t_{prc}) on the prices and quantities of the US domestic production and US imports from these exporters, from the remaining Chinese exporters and from the rest of the world. In other words, the simulated value of US imports represents the value of US imports but for the WTO-inconsistent anti-dumping duties. The corresponding level of nullification or impairment is obtained by calculating the difference between the actual value of US imports from China in 2017 and the counterfactual value of US imports from China. The United States calculates the counterfactual value of US imports from China as the sum of the simulated value of US imports from exporters subject to WTO-inconsistent anti-dumping duties and the simulated value of US imports from the remaining Chinese exporters following the reduction of the anti-dumping duties from the actual duty rates to the counterfactual duty rates.²¹⁴

6.44. In order to estimate the level of nullification or impairment for a given anti-dumping order, the Armington model requires 13 parameter inputs: the 2017 total value of the US market (Y_0), the 2017 market shares of the four varieties of the product originating in four different sources²¹⁵ (m_{us} , m_{prc} , m_{roc} and m_{row}), the price elasticity of total demand (total demand elasticity) (θ), the elasticity of substitution (σ), the supply elasticities of the four varieties (ε_{us} , ε_{prc} , ε_{roc} and ε_{row}), and the actual and counterfactual duty rates. These 13 parameter inputs determine the calibrated values of the remaining parameters of the model, namely, the supply and demand shifting factors (a_{us} , a_{prc} , a_{roc} , a_{row} , b_{us} , b_{prc} , b_{roc} and b_{row}).

6.45. The total demand elasticity measures the responsiveness of the quantity demanded of a product to a change in its price. It is typically defined as the percentage change in the quantity demanded in response to a 1% change in price.

6.46. The elasticity of substitution, also known as the rate of substitution or Armington elasticity, measures how easily US consumers switch from one variety to the other when prices change. Under the assumptions of the Armington model, consumers substitute between each variety at a constant rate. This elasticity of substitution ranges between 0 and infinity. A 0 elasticity of substitution means

²¹³ Code and Text Version of the United States' Proposed Armington Model, (Exhibit USA-19).

²¹⁴ United States' written submission, para. 75.

²¹⁵ The market share for each variety of the product is defined as its share of total US consumption of the product, namely, $m_{us} = \frac{p_{us} \times q_{us}}{P \times Q}$, $m_{prc} = \frac{p_{prc} \times q_{prc}}{P \times Q}$, $m_{roc} = \frac{p_{roc} \times q_{roc}}{P \times Q}$, $m_{row} = \frac{p_{row} \times q_{row}}{P \times Q}$.

that there is no substitutability at all between varieties, while an infinite elasticity of substitution means that the varieties are considered perfect substitutes by consumers.

6.47. The supply elasticity measures the responsiveness of the quantity supplied of a product to a change in its price. This supply elasticity ranges between 0 and infinity. A 0 supply elasticity means that firms have constrained production capacity and cannot increase or decrease the supply of the product in response to price changes, while an infinite elasticity means that firms can automatically increase or decrease the supply of the product in response to price changes.

6.2.2 Assessment by the Arbitrator

6.48. We have described above the two different calculation methodologies that the United States proposes to estimate the level of nullification or impairment. Below, we first assess the United States' approach for choosing, for each anti-dumping order at issue, which of the two calculation methodologies to apply. We then assess both calculation methodologies, beginning with the formula-based approach and then turning to the Armington model.

6.2.2.1 Assessment of the United States' approach for choosing between the two calculation methodologies

6.49. In deciding which of the two methodologies to use for estimating the level of nullification or impairment, the United States uses a threshold of 1% for the share of the value of US imports from exporters assigned WTO-inconsistent anti-dumping duties over the total value of US imports from China in 2017. If this share is greater than 1% for an anti-dumping order, the United States uses the Armington model to estimate the level of the nullification or impairment concerning the order. Conversely, if this share is less than 1%, the United States uses the formula-based approach to estimate the level of nullification or impairment concerning the order.²¹⁶

6.50. The United States uses the 1% threshold because it contends that the Armington model cannot be used to produce reliable estimates where the share of US imports from exporters assigned WTO-inconsistent anti-dumping duties is "minimal"²¹⁷ or "close to zero".²¹⁸ In the United States' view, 1% is a reasonable threshold above which import values are sufficiently large to reveal underlying relative competitiveness given the prevailing conditions in the market, and thus to permit the use of the Armington model.²¹⁹ China, on the other hand, contends that the 1% threshold is arbitrary and that the United States has provided no academic support for using this threshold.²²⁰ According to China, there are a number of anti-dumping orders where the share of US imports from exporters assigned WTO-inconsistent anti-dumping duties is so small, albeit above the 1% threshold, that it renders the use of the Armington model inapt.²²¹

6.51. As further discussed in section 6.2.2.3.2 below, both parties agree that the Armington model is not an appropriate calculation methodology for estimating the level of nullification or impairment concerning anti-dumping orders where the 2017 market share of exporters assigned WTO-inconsistent anti-dumping duties is very small, although they disagree on the specific threshold to be used. This problem, often referred to as the "small shares" problem, is also recognized in the academic literature.²²² More particularly, if the exporters subject to WTO-inconsistent anti-dumping duties have a very small market share in the reference period, the Armington model will simulate a very small trade impact of reducing the duty rates, even if that reduction is very large. This is because increases or decreases in market shares are expressed relative to initial market shares in

²¹⁶ United States' written submission, paras. 44-45 and 78.

²¹⁷ United States' written submission, para. 45.

²¹⁸ United States' written submission, para. 78.

²¹⁹ United States' response to Arbitrator question No. 38(b), para. 143.

²²⁰ China's written submission, para. 165.

²²¹ China's written submission, para. 165 (referring to *Iron Pipe Fittings, Bags, Steel Nails, and Steel Cylinders*).

²²² The "small shares" problem is sometimes referred to as the "small shares stay small" problem. (See M. Kuiper and F. van Tongeren, "Using gravity to move Armington" (2006), Paper prepared for the Ninth Annual Conference on Global Economic Analysis in Addis Ababa, Ethiopia. See also G. Philippidis, H. Resano-Ezcaray, A. I. Sanjuán-López. "Shifting Armington Trade Preferences: A re-examination of the Mercosur-EU negotiations" (2014), No. 40. *Economic Modelling*, pp. 21-32).

the Armington model.²²³ In the case of a 0% market share in the reference period for exporters subject to WTO-inconsistent anti-dumping duties, the Armington model will always generate a 0% simulated market share for those exporters, no matter how large the reduction in the duty rates is. However, we see no basis in academic literature for using a 1% threshold, and the United States has provided no such basis in order to justify its approach.²²⁴

6.52. We further note that, for the purpose of determining whether the 1% threshold is met, the United States uses the share of the value of US imports from exporters subject to WTO-inconsistent anti-dumping duties *over the total value of US imports from China in 2017*.²²⁵ For the purpose of estimating the level of nullification or impairment, however, the Armington model uses the share of the value of US imports from exporters assigned WTO-inconsistent anti-dumping duties *over the total value of the US market in 2017*.²²⁶ It is unclear why the United States does not define its threshold with the same denominator used in the Armington model. Since the total value of US imports from China is always smaller than the total value of the US market, using the former as the denominator necessarily increases the share and thus renders it more likely that the threshold for using the Armington model is met.

6.53. While we, in principle, see no issue with using different calculation methodologies for the different anti-dumping orders, the approach for choosing between the two must not be arbitrary, considering the features of these methodologies. Given that the United States applies an arbitrary threshold and calculates this threshold using inputs, which are not consistent with those used in the Armington model and which make it more likely that the threshold for using the Armington model is met, we consider that the United States follows an arbitrary approach in choosing between the Armington model and the formula-based approach.

6.54. For these reasons, we decline to use the United States' approach for choosing between the Armington model and the formula-based approach. We turn to assess each of the two calculation methodologies to determine an appropriate calculation methodology for estimating the level of nullification or impairment concerning all of the anti-dumping orders at issue.

6.2.2.2 Assessment of the formula-based approach

6.55. As explained above, the formula-based approach applies the historic share of US imports from Chinese exporters subject to WTO-inconsistent anti-dumping duties, from prior to their imposition, to the total value of US imports from China in 2017, in order to determine a counterfactual value of US imports from those exporters in 2017 and to estimate the level of nullification or impairment.²²⁷

6.56. China argues that the formula-based approach incorrectly assumes that any increase in imports from Chinese exporters subject to WTO-inconsistent anti-dumping duties under the counterfactual scenario would occur at the expense of other Chinese exporters.²²⁸ Further, China argues that this approach yields downward biased results because it uses historical shares of exporters subject to WTO-inconsistent anti-dumping duties, which China considers demonstrably wrong²²⁹, and applies these historical shares to the actual 2017 total value of US imports from China, which China considers to be depressed due to the imposition of the anti-dumping duties.²³⁰ The United States, on the other hand, argues that the formula-based approach does not "take trade

²²³ In particular, the simulated market shares in the Armington model depend, among others, on the demand shifting factors, whose calibrated values depend on the initial market shares. All other things being equal, small initial market shares thus yield small demand shifting factors, which in turn yield small simulated market shares.

²²⁴ The United States argues that the 1% threshold is a reasonable determination of the point at which observed import values are sufficiently greater than 0 to reveal underlying relative competitiveness given the prevailing conditions in the market. However, despite being asked for economic evidence supporting the use of a 1% threshold, the United States has not provided references to academic literature or other evidence in support of its argument. (United States' response to Arbitrator question No. 28(b), paras. 143-144).

²²⁵ United States' written submission, para. 87.

²²⁶ See R. Hallren and D. Riker, *An Introduction to Partial Equilibrium Modeling of Trade Policy*, Economics Working Paper Series (Working Paper 2017-07-B), USITC (July 2017), (Exhibit USA-15).

²²⁷ United States' written submission, paras. 10 and 88; and response to Arbitrator question No. 40, para. 155.

²²⁸ China's written submission, para. 135.

²²⁹ China's written submission, paras. 146-148.

²³⁰ China's written submission, para. 157.

volume or value away" from other Chinese exporters.²³¹ The United States considers that the historical share of exporters subject to WTO-inconsistent anti-dumping duties is an appropriate reference point²³², and that it is reasonable to scale the actual 2017 total value of US imports from China.²³³

6.57. By using the actual 2017 value of total US imports from China, the formula-based approach assumes that the total value of US imports from China would remain the same, had the United States complied with the DSB recommendations and rulings by the expiry of the reasonable period of time. In other words, where the value of US imports from exporters subject to WTO-inconsistent anti-dumping duties increases in the counterfactual scenario, the formula-based approach assumes that this increase is offset by a corresponding decrease in the value of US imports from other Chinese exporters. The United States provides no evidence suggesting that this assumption is reasonable. The United States simply asserts that the formula-based approach does not "take trade volume or value away" from Chinese exporters that were not assigned WTO-inconsistent anti-dumping duties, but rather uses the historical import shares for all Chinese exporters.²³⁴ The basis for this assertion appears to relate to the United States' proposed counterfactual, namely, the reduction of the WTO-inconsistent anti-dumping duties to the level of the anti-dumping duties assigned to "the rest of China".²³⁵ We recall that we have rejected the United States' proposed counterfactual with respect to several of the WTO-inconsistent anti-dumping duties at issue.²³⁶ Further, in our view, it is not reasonable to assume that the value of total US imports from China would remain at the actual 2017 value, and that any increase in US imports from Chinese exporters subject to WTO-inconsistent anti-dumping duties would be offset by a corresponding decrease in US imports from other Chinese exporters.

6.58. Furthermore, by using historical shares of total US imports from China from prior to the imposition of the anti-dumping orders, the formula-based approach assumes that the share of the Chinese exporters subject to WTO-inconsistent anti-dumping duties would be the same in the year prior to the imposition of the anti-dumping orders and in the counterfactual scenario for 2017. In other words, the formula-based approach assumes that other factors occurring between the imposition of the anti-dumping orders and 2017 would not have any impact on US imports from China. While the United States argues that the historical share is an appropriate reference point²³⁷, it provides no evidence demonstrating that this is a reasonable assumption.²³⁸ In light of this, we do not consider that it would be reasonable to assume that the share of the Chinese exporters subject to WTO-inconsistent anti-dumping duties would necessarily be the same in the year prior to the imposition of the anti-dumping orders and in the counterfactual scenario for 2017.

6.59. For these reasons, we do not consider that the formula-based approach is an appropriate methodology for estimating the level of nullification or impairment concerning the anti-dumping orders at issue. We therefore proceed to assess the United States' second proposed calculation methodology, the Armington model.

²³¹ United States' response to Arbitrator question No. 43, para. 175.

²³² United States' response to Arbitrator question No. 5, para. 20.

²³³ United States' response to Arbitrator question No. 44, para. 178.

²³⁴ United States' response to Arbitrator question No. 43, para. 175.

²³⁵ United States' response to Arbitrator question No. 38(a), para. 141.

²³⁶ See section 5.2 above. We further note that, under the counterfactual that the United States proposes, not all Chinese exporters would be subject to the same level of anti-dumping duties. As explained in section 5.2.2 above, the United States proposes to reduce the anti-dumping duties for cooperating exporters within the PRC-wide entity from the PRC-wide duty rate to the separate duty rate, assigned to Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination. While the duty rates would thus be the same for these exporters under the counterfactual that the United States proposes, they would not necessarily be the same for exporters that were chosen for individual examination or non-cooperating exporters within the PRC-wide entity, for which the United States proposes to maintain the PRC-wide duty rate.

²³⁷ United States' response to Arbitrator question No. 5, para. 20.

²³⁸ In fact, the United States appears to contradict the assumption underlying its proposed formula-based approach in arguing that China's proposed DID tabular approach is not appropriate for estimating the level of nullification or impairment concerning the anti-dumping orders at issue. More particularly, in arguing that China's proposed DID tabular approach is not appropriate, the United States emphasizes that the evolution of US imports are impacted by factors other than simply the anti-dumping duties. (United States' written submission, paras. 123, 125, and 148; and response to Arbitrator question No. 17, paras. 66-67).

6.2.2.3 Assessment of the Armington model

6.60. As explained above, the Armington model simulates the impact, in the US market, of reducing the WTO-inconsistent anti-dumping duties from the actual duty rates to the counterfactual duty rates. China argues that this model is not appropriate because it is not designed for the circumstances surrounding the anti-dumping orders at issue. More particularly, China argues that the accuracy of the Armington model depends, in part, on the changes between the actual 2017 duty rates and the counterfactual duty rates being small²³⁹ and the size and duration of the anti-dumping duties not being such that the exporters have almost been driven out of the market.²⁴⁰ We address these arguments below.²⁴¹

6.2.2.3.1 Level of changes in the duty rates

6.61. China contends that the Armington model can only provide valid results when simulating small changes in duty rates, and has provided a graphical analysis to support its contention.²⁴² In China's view, the changes from the actual 2017 duty rates to the counterfactual duty rates are too large to yield valid results for "many of the major cases underlying this dispute".²⁴³ The United States argues that there is no reason to suggest that the estimates that the Armington model generates are inaccurate when the changes in duty rates are large, since the price elasticity of demand varies with the size of the changes in the duty rates.²⁴⁴

6.62. The graphical analysis that China provided relates to the issue of calculating elasticities, not to China's assertion that the Armington model cannot accurately simulate large changes in duty rates. We therefore consider that China has not provided evidence demonstrating the alleged inaccuracy of the Armington model when simulating large changes in duty rates. Furthermore, and as pointed out by the United States, one can mathematically demonstrate the accuracy of the Armington model when simulating large changes in duty rates, since applying the Armington model to simulate the impact of a large duty rate change yields the same result as the cumulated result yielded by dividing that large duty rate change into many small steps and applying the Armington model to simulate the impact associated with each step.²⁴⁵ For these reasons, we do not consider that the Armington model is unsuitable for estimating the level of nullification or impairment concerning the anti-dumping orders at issue, regardless of whether the reduction of the WTO-inconsistent anti-dumping duties, from the actual 2017 duty rates to the counterfactual duty rates, is large.²⁴⁶

6.2.2.3.2 Small market shares resulting from the depressing effect of the WTO-inconsistent anti-dumping duties

6.63. China points out that many of the anti-dumping orders at issue have driven down imports from Chinese exporters subject to the WTO-inconsistent anti-dumping duties. China argues that it is virtually impossible for the Armington model to estimate anything but very small levels of nullification or impairment, where the 2017 market share of the Chinese exporters subject to the

²³⁹ China's written submission, paras. 185-187.

²⁴⁰ China's written submission, paras. 185 and 188-190.

²⁴¹ China has also raised several points of criticism regarding the data used by the United States when applying the Armington model to estimate the level of nullification or impairment concerning the anti-dumping orders at issue. We address relevant arguments regarding data in section 7.1 below.

²⁴² Economic Discussion of Technical Issues Concerning the Armington Model Used by the United States, (Exhibit CHN-31 (BCI)). China also argues that the accuracy of measuring the economic effects depends on the position along the demand curve and whether it lies within the continuous "interior" segment of the demand curve. (Ibid). However, China has not provided any empirical evidence in support of this argument.

²⁴³ China's written submission, paras. 185-187.

²⁴⁴ United States' response to Arbitrator question No. 37(a), para. 132.

²⁴⁵ This method of dividing large changes into many small steps and calculating the adjustment in the market equilibrium associated with each small step is often referred to as the multi-step Euler method. (See D. Riker, *Multinational Production and Employment in an Industry-Specific Model of Trade*, Economics Working Paper Series (Working Paper 2018-08-C), USITC (August 2018), (Exhibit USA-67)).

²⁴⁶ In addition, as explained in paragraph 6.42 above, the United States solves the Armington model through a numerical iterative algorithm. Unlike solving the Armington model through a linear approximation, the accuracy of the simulation using the Armington model is not affected by the size of the duty rate changes if the model is solved through numerical iteration. (R. Hallren and D. Riker, *An Introduction to Partial Equilibrium Modeling of Trade Policy*, Economics Working Paper Series (Working Paper 2017-07-B), USITC (July 2017), (Exhibit USA-15)).

WTO-inconsistent anti-dumping duties is very small.²⁴⁷ The United States responds that, technically, the Armington model can be used as long as the 2017 market share of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties is above 0%.²⁴⁸ At the same time, the United States acknowledges that the Armington model cannot be used to produce reliable estimates where the share of US imports from the Chinese exporters subject to the WTO-inconsistent anti-dumping duties is "minimal"²⁴⁹ or "close to zero"²⁵⁰, which, in turn, is the reason the United States proposes to use the formula-based approach for anti-dumping orders where the share of the value of US imports from the Chinese exporters subject to the WTO-inconsistent anti-dumping duties over the total value of US imports from China in 2017 is less than 1%.²⁵¹

6.64. As explained above, due to its intrinsic features, the United States' proposed Armington model will necessarily simulate a small trade impact of reducing the WTO-inconsistent anti-dumping duties if the exporters subject to these duties have a small market share in the reference period. We have rejected the United States' approach of using a 1% threshold for applying the Armington model because this threshold is arbitrary and is calculated using inputs that are not consistent with those used in the Armington model. Rather than using an arbitrary threshold, we consider it appropriate to focus our assessment on the intrinsic features of the Armington model and how such features interact with the particular circumstances of the anti-dumping orders at issue, in considering whether this model represents a reasonable methodology for estimating the level of nullification or impairment.

6.65. Although the United States' proposed Armington model will simulate a small trade impact of reducing the WTO-inconsistent anti-dumping duties where the market share in the reference period is small, this does not necessarily render such results unreasonable so long as this small market share is not caused by the anti-dumping duties at issue. If the Chinese exporters subject to the WTO-inconsistent anti-dumping duties have small 2017 market shares for reasons unrelated to these duties – such as distance, language, cultural or political barriers – the small trade impact simulated by the Armington model may be considered reasonable.²⁵² If, however, the exporters subject to the WTO-inconsistent anti-dumping duties have small 2017 market shares because of the depressing effect of these duties, the small trade impact simulated by the Armington model may be considered unreasonable because it understates the trade impact of reducing the anti-dumping duties. More particularly, if the imposition of the WTO-inconsistent anti-dumping duties had a significant depressing effect on the 2017 market shares of the exporters, the reduction of these duties would normally be expected to have a similarly significant trade impact, all other factors being equal. This calls into question the reasonableness of using the Armington model under such circumstances since this model, as explained above, necessarily simulates small trade impacts when the 2017 market shares are small. The reasonableness of the estimated level of nullification or impairment simulated using the Armington model thus depends on the particular circumstances of the anti-dumping orders at issue.

6.66. Having reviewed the particular circumstances of the anti-dumping orders at issue, we note that the market shares of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties have declined significantly from the year prior to the imposition of these duties to calendar year 2017. More particularly, and as illustrated by the Figures in Annexes D-2 and D-3, the market shares of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties all declined sharply by 95.9% to 100%, for all of the anti-dumping orders at issue. This is so regardless of the duration of the anti-dumping order and the level of the WTO-inconsistent anti-dumping duties. Although the evolution of market shares is affected by different factors, for all of the anti-dumping orders at issue, the market shares of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties experienced a significant decline following the imposition of the duties, which suggests that the duties had significant depressing effects and resulted in the small 2017 market shares. In light of this, we do not consider it reasonable to use a calculation methodology where the depressed small 2017 market shares of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties will necessarily lead to small simulated trade impacts of reducing these duties, and thus to a small estimated level of nullification or impairment. As explained in the previous

²⁴⁷ China's written submission, para. 136.

²⁴⁸ United States' response to Arbitrator question No. 37(b), para. 136.

²⁴⁹ United States' written submission, para. 45.

²⁵⁰ United States' written submission, para. 78.

²⁵¹ United States' written submission, paras. 45 and 87.

²⁵² See M. Kuiper and F. van Tongeren, "Using gravity to move Armington" (2006), Paper prepared for the Ninth Annual Conference on Global Economic Analysis in Addis Ababa, Ethiopia.

paragraphs, if we apply the Armington model in the manner proposed by the United States, it will yield exactly this outcome.

6.67. In light of these circumstances, we consider it necessary to adjust the United States' proposed Armington model in order to address the small market shares resulting from the depressing effect of the WTO-inconsistent anti-dumping duties at issue.

6.2.2.4 Adjustments to the United States' proposed Armington model

6.68. Above, we have determined that the United States' proposed Armington model requires certain adjustments to address the small market shares resulting from the depressing effects of the WTO-inconsistent anti-dumping duties. In this section, we consider possible adjustments to address this issue. Furthermore, we consider possible adjustments to reflect the counterfactual determined in section 5.3 above.

6.2.2.4.1 Adjustments to address the small market shares resulting from the depressing effect of the WTO-inconsistent anti-dumping duties

6.69. As explained in section 6.2.2.3.2 above, we have determined that it is necessary to adjust the United States' proposed Armington model in order to address the small market shares resulting from the depressing effect of the WTO-inconsistent anti-dumping duties. To address this issue, we proposed to the parties using the Armington model in two steps:

6.70. As the first step, the Armington model would be applied to the US market as it existed prior to the imposition of the anti-dumping orders to simulate the impact of imposing the relevant anti-dumping duties on the market shares of the Chinese exporters (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters from the rest of the world, and the US producers. The market shares of the Chinese exporters simulated under the first step would then be applied to the actual 2017 total value of the US market in order to obtain the simulated 2017 total value of US imports from China.

6.71. As the second step, the Armington model would be applied to the actual 2017 US market with the market shares simulated under the first step to simulate the impact of reducing the WTO-inconsistent anti-dumping duties from the actual duty rates to the counterfactual duty rates on the value of US imports from China (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters from the rest of the world, and the US producers.²⁵³ The value of US imports from China simulated under the second step corresponds to the counterfactual value of US imports from China.

6.72. The estimated level of nullification or impairment would be obtained by calculating the difference between the 2017 value of US imports from China, simulated under the first step, and the counterfactual value of US imports from China, simulated under the second step.

6.73. The United States submits that it would be legally incorrect for the Arbitrator to adjust the market shares to address China's arguments concerning the Armington model's inability to simulate the impact of anti-dumping duties that have had depressing effects on trade levels. Since the United States was not obligated to comply with the DSB recommendations and rulings until the expiry of the reasonable period of time, the United States submits that the Arbitrator should estimate the impact of the WTO-inconsistent anti-dumping duties only as of this point in time, by using calendar year 2017 as the reference period.²⁵⁴ China reiterates its arguments that the Armington model cannot accurately simulate the impact of large duty rate changes²⁵⁵, nor the impact of anti-dumping duties that have been in place for long periods of time and have had depressing effects on imports from Chinese exporters.²⁵⁶

²⁵³ For a similar approach, see Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.114-3.119.

²⁵⁴ United States' opening statement at the meeting of the Arbitrator, para. 61; and response to Arbitrator question No. 65, paras. 88-92.

²⁵⁵ China's response to Arbitrator question No. 65, paras. 45-47.

²⁵⁶ China's response to Arbitrator question No. 65, para. 48. China has also raised several arguments concerning the reliability and lack of data which it considers necessary for applying the Armington model to

6.74. We agree with the United States that our mandate is to determine the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings as of the expiry of the reasonable period of time. Since the United States did not implement the DSB recommendations and rulings by the expiry of the reasonable period of time, our mandate necessarily requires us to estimate what would have happened, had the United States done so. In other words, we are required to rely on economic models or calculation methodologies to simulate what would have happened in a hypothetical scenario where the United States implemented the DSB recommendations and rulings by the expiry of the reasonable period of time.

6.75. Such models or methodologies may have intrinsic features that render them more or less reasonable depending on the specific circumstances. In such a case, our mandate requires us to make the necessary adjustments to the model or methodology at issue, to ensure that the simulated result represents a reasonable estimation of the level of nullification or impairment. Above, we have determined that the United States' proposed Armington model cannot produce a reasonable estimate of the level of nullification or impairment concerning the anti-dumping orders at issue because the WTO-inconsistent anti-dumping duties have had significant depressing effects on the 2017 market shares of the Chinese exporters subject to these duties. To address this issue, we find it appropriate to apply the Armington model in two steps, in the manner described in paragraphs 6.69 through 6.72 above, to take into account the depressing effect of the WTO-inconsistent anti-dumping duties. In our view, this approach will result in a reasonable estimate of the level of nullification or impairment. We wish to underline that, by applying the Armington model in two steps, we do not move away from the principle that the level of nullification or impairment should be estimated as of the expiry of the reasonable period of time. We are making our estimate as of that date, but we are simulating the 2017 market shares to reflect the imposition of the relevant anti-dumping duties while taking into account these duties' depressing effects, in order to address intrinsic features of the United States' proposed Armington model that would otherwise render the estimated level of nullification or impairment unreasonable.

6.76. Turning to China's arguments, we recall that we have already rejected the argument that the Armington model cannot simulate the impact of large changes in duty rates.²⁵⁷ We see no reason to address this argument differently in the context of our proposed approach to use the Armington model in two steps. Further, our proposed approach of using the Armington model in two steps is meant to address the very concerns China raised regarding the Armington model's ability to accurately estimate the level of nullification or impairment concerning anti-dumping orders where the 2017 market shares of the Chinese exporters subject to the WTO-inconsistent anti-dumping duties are small due to the depressing effect of these duties.

6.77. For these reasons, we consider that it is appropriate to use the Armington model in two steps in order to estimate the level of nullification or impairment concerning the anti-dumping orders at issue.

6.2.2.4.2 Adjustments to reflect the counterfactual determined by the Arbitrator

6.78. As explained in section 5.3 above, we have determined a counterfactual that entails the reduction of the anti-dumping duties that were calculated using the WTO-inconsistent WA-T methodology with zeroing and the WTO-inconsistent Single Rate Presumption. More particularly, with respect to *Coated Paper*, we are using a 0.00% duty rate as the counterfactual for the exporter APP-China, for the exporters that are subject to the separate duty rate, and for the exporters within the PRC-wide entity that are subject to the PRC-wide duty rate. With respect to *OCTG*, we are using a [[***]]% duty rate as the counterfactual for the exporter TPCO and for the exporters that are subject to the separate duty rate, and we are using a 0.00% duty rate as the counterfactual for the exporters within the PRC-wide entity that are subject to the PRC-wide duty rate. With respect to *Steel Cylinders*, we are using a 0.00% duty rate as the counterfactual for the exporters that are subject to the separate duty rate and for the exporters within the PRC-wide entity that are subject to the PRC-wide duty rate. With respect to *Aluminum Extrusions; Bags Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard,*

estimate the level of nullification or impairment concerning the anti-dumping orders at issue. We address relevant arguments regarding data in section 7.1 below.

²⁵⁷ See section 6.2.2.3.1 above.

Line, and Pressure Pipe; and Steel Wire Rod, we are using a 0.00% duty rate as the counterfactual for the exporters within the PRC-wide entity that are subject to the PRC-wide duty rate. We are maintaining all other duty rates imposed under the anti-dumping orders at issue, without any modification.

6.79. As explained in paragraph 6.41 above, the United States proposes an Armington model with four varieties of the product for each anti-dumping order: (i) variety produced in the United States (*us*); (ii) variety imported from the Chinese exporters subject to WTO-inconsistent anti-dumping duties (*prc*); (iii) variety imported from the remaining Chinese exporters (*roc*); and (iv) variety imported from the rest of the world (*row*). The variety of the product imported from the Chinese exporters subject to WTO-inconsistent anti-dumping duties only covers imports of the product from exporters within the PRC-wide entity that are subject to the WTO-inconsistent PRC-wide duty rate.²⁵⁸

6.80. To ensure that we estimate the level of nullification or impairment concerning the USDOC's use of both the WTO-inconsistent WA-T methodology with zeroing and the WTO-inconsistent Single Rate Presumption, we need to adjust the United States' proposed Armington model by creating a fifth variety of the product for the anti-dumping orders where we are reducing the duty rates calculated using the WA-T methodology with zeroing, that is *Coated Paper*, *OCTG*, and *Steel Cylinders*. More particularly, for these three orders, we will apply the Armington model with the following five varieties of the product at issue: (i) variety produced in the United States (*us*); (ii) variety imported from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates (*wat*) (iii) variety imported from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates (*prc*); (iv) variety imported from the remaining Chinese exporters (*roc*); and (v) variety imported from the rest of the world (*row*). In more technical terms, the Armington model with five varieties is specified by the following set of equations representing the supply and the demand of each of the five varieties of the product (equations 7 to 11) as well as an aggregate product demand (equation 12) and a price index (equation 13):

²⁵⁸ United States' written submission, para. 63. Despite acknowledging that it should estimate the level of nullification or impairment concerning the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing in at least certain anti-dumping orders, the United States does not include a fifth variety of the product imported from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates. (United States' written submission, paras. 104-107). As explained in sections 5.2.1.2 and 5.2.1.3 above, the United States argues that the level of nullification or impairment concerning the USDOC's use of the WA-T methodology with zeroing in *OCTG* and *Steel Cylinders* should be estimated to be zero. For *Coated Paper*, the United States calculates the level of nullification or impairment concerning the USDOC's use of the WA-T methodology with zeroing by applying the four-variety Armington model. (United States' written submission, paras. 102-109).

US domestic production market equilibrium:

$$a_{us} (p_{us})^{\varepsilon_{us}} = Q b_{us}^{\sigma} \left(\frac{p_{us}}{P}\right)^{-\sigma} \quad (7)$$

US imports from Chinese exporters subject to WTO-inconsistent WA-T duty rates market equilibrium:

$$a_{wat} \left(\frac{p_{wat}}{t_{wat}}\right)^{\varepsilon_{wat}} = Q b_{wat}^{\sigma} \left(\frac{p_{wat}}{P}\right)^{-\sigma} \quad (8)$$

US imports from Chinese exporters subject to WTO-inconsistent PRC-wide duty rates market equilibrium:

$$a_{prc} \left(\frac{p_{prc}}{t_{prc}}\right)^{\varepsilon_{prc}} = Q b_{prc}^{\sigma} \left(\frac{p_{prc}}{P}\right)^{-\sigma} \quad (9)$$

US imports from the rest of China market equilibrium:

$$a_{roc} (p_{roc})^{\varepsilon_{roc}} = Q b_{roc}^{\sigma} \left(\frac{p_{roc}}{P}\right)^{-\sigma} \quad (10)$$

US imports from the rest of the world market equilibrium:

$$a_{row} (p_{row})^{\varepsilon_{row}} = Q b_{row}^{\sigma} \left(\frac{p_{row}}{P}\right)^{-\sigma} \quad (11)$$

US aggregate market equilibrium:

$$Q = Y_0 P^{\theta} \quad (12)$$

US price index

$$P = \left(b_{us}^{\sigma} p_{us}^{1-\sigma} + b_{wat}^{\sigma} p_{wat}^{1-\sigma} + b_{prc}^{\sigma} p_{prc}^{1-\sigma} + b_{roc}^{\sigma} p_{roc}^{1-\sigma} + b_{row}^{\sigma} p_{row}^{1-\sigma} \right)^{\frac{1}{1-\sigma}} \quad (13)$$

6.2.2.5 Conclusion

6.81. For the reasons explained above, we consider that it is appropriate to apply the Armington model in two steps for the anti-dumping orders at issue. For 22 of the anti-dumping orders at issue²⁵⁹, we will apply the Armington model with four varieties of the product, and for the remaining three anti-dumping orders at issue²⁶⁰, we will apply the Armington model with five varieties of the product. We now turn to determine how to implement this calculation methodology with respect to each of the anti-dumping orders at issue.

7 ARBITRATOR'S IMPLEMENTATION OF THE CHOSEN METHODOLOGY

7.1. Above, we have determined that it is appropriate to apply the Armington model in two steps, with either four or five varieties of the product, in order to estimate the level of nullification or impairment concerning the anti-dumping orders at issue.

7.2. As the first step, we will apply the Armington model to the US market as it existed prior to the imposition of the anti-dumping orders in order to simulate, for each anti-dumping order, the impact of imposing the relevant anti-dumping duties on the market shares of the Chinese exporters (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters from the rest of the world, and the US producers. We will then apply the market shares of the Chinese exporters simulated under the first step to the actual 2017 total value of the US market in order to obtain the simulated 2017 total value of US imports from China.

7.3. As the second step, we will apply the Armington model to the actual 2017 US market with the market shares simulated under the first step in order to simulate, for each anti-dumping order, the impact of reducing the WTO-inconsistent anti-dumping duties from the actual duty rates to the counterfactual duty rates on the value of US imports from China (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters

²⁵⁹ Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.

²⁶⁰ Coated Paper; OCTG; and Steel Cylinders.

from the rest of the world, and the US producers.²⁶¹ The value of US imports from China simulated under the second step corresponds to the counterfactual value of US imports from China.

7.4. We will then estimate the level of nullification or impairment concerning the anti-dumping orders at issue by calculating, for each order, the difference between the 2017 value of US imports from China, simulated under the first step, and the counterfactual value of US imports from China, simulated under the second step.

7.5. For the 22 anti-dumping orders that concern only the USDOC's use of the WTO-inconsistent Single Rate Presumption²⁶², we will implement the Armington model with four varieties of the product: (i) variety produced in the United States (*us*); (ii) variety imported from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates (*prc*); (iii) variety imported from the remaining Chinese exporters (*roc*); and (iv) variety imported from the rest of the world (*row*). For the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption²⁶³, we will implement the Armington model with five varieties of the product: (i) variety produced in the United States (*us*); (ii) variety imported from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates (*wat*); (iii) variety imported from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates (*prc*); (iv) variety imported from the remaining Chinese exporters (*roc*); and (v) variety imported from the rest of the world (*row*).

7.6. Below, we determine the relevant data inputs required to implement the Armington model in two steps in the manner described above. Then, we provide the results for the anti-dumping orders at issue. Finally, we provide our estimated level of nullification or impairment concerning these anti-dumping orders.

7.1 Data inputs

7.7. In order to implement the Armington model under the first step, we need information on the total value of the US market in the year prior to the imposition of the anti-dumping orders at issue and the corresponding market shares of the US domestic producers, the Chinese exporters subject to the WTO-inconsistent anti-dumping duties, the remaining Chinese exporters, and the exporters from the rest of the world. We also need the total demand elasticity, the elasticity of substitution, and the supply elasticities for US domestic shipments and the different sources of US imports. Finally, we need information on the actual 2017 duty rates in order to simulate the impact of imposing the anti-dumping duties.

7.8. The implementation of the Armington model under the first step will provide us with the simulated market shares following the imposition of the relevant anti-dumping duties, which we, in turn, use as data inputs for the implementation of the Armington model under the second step. For the second step, we will use the same elasticities used in the first step. The only new information required to implement the Armington model under the second step concerns the total value of the US market in 2017 as well as the counterfactual duty rates for the WTO-inconsistent anti-dumping duties.

7.9. Below, we explain how we have selected each of the data inputs described above. At the outset, we note that most of the required data inputs were not directly available, and we were required to rely on the best information available. In choosing what information to rely on, we have taken into account both parties' views as well as the need to rely on "credible, factual, and verifiable information"²⁶⁴, while bearing in mind practical difficulties and limits.

²⁶¹ For a similar approach, see Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.114-3.119.

²⁶² *Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.*

²⁶³ *Coated Paper; OCTG; and Steel Cylinders.*

²⁶⁴ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.63. See also Decisions by the Arbitrators, *US – COOL (Article 22.6 – US)*, para. 4.5; *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 5.2; and *US – Washing Machines (Article 22.6 – US)*, para. 1.16.

7.1.1 Total market value and market shares

7.10. For the 22 anti-dumping orders that only concern the USDOC's use of the WTO-inconsistent Single Rate Presumption²⁶⁵, the total value of the US market (Y) is composed of the value of US shipments (X_{us}); the value of US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates (X_{prc}); the value of US imports from the remaining Chinese exporters (X_{roc}), and the value of US imports from exporters from the rest of the world (X_{row}):

$$\begin{array}{l} \text{Total value of the US market:} \\ \text{(four variety-market)} \end{array} \quad Y = X_{us} + X_{prc} + X_{roc} + X_{row} \quad (14)$$

7.11. The market share of each product variety is determined by dividing the value of each variety by the total value of the US market:

$$\begin{array}{l} \text{Market shares:} \end{array} \quad \begin{array}{l} m_{us} = \frac{X_{us}}{Y} \\ m_{roc} = \frac{X_{roc}}{Y} \end{array} \quad \begin{array}{l} m_{prc} = \frac{X_{prc}}{Y} \\ m_{row} = \frac{X_{row}}{Y} \end{array} \quad (15)$$

7.12. For the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption²⁶⁶, the total value of the US market (Y) is composed of the value of US shipments (X_{us}); the value of US imports from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates (X_{wat}); the value of US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates (X_{prc}); the value of US imports from the remaining Chinese exporters (X_{roc}), and the value of US imports from exporters from the rest of the world (X_{row}):

$$\begin{array}{l} \text{Total value of the US market:} \\ \text{(five variety-market)} \end{array} \quad Y = X_{us} + X_{wat} + X_{prc} + X_{roc} + X_{row} \quad (16)$$

7.13. Again, the market share of each product variety is determined by dividing the value of each variety by the total value of the US market:

$$\begin{array}{l} \text{Market shares:} \end{array} \quad \begin{array}{l} m_{us} = \frac{X_{us}}{Y} \\ m_{prc} = \frac{X_{prc}}{Y} \\ m_{row} = \frac{X_{row}}{Y} \end{array} \quad \begin{array}{l} m_{wat} = \frac{X_{wat}}{Y} \\ m_{roc} = \frac{X_{roc}}{Y} \end{array} \quad (17)$$

7.1.1.1 Value of US shipments

7.14. The value of US shipments of a given product corresponds to the value of US domestic production of that product sold in the US market. To implement the Armington model under the first step, we need data on the value of US shipments in the year prior to the imposition of the anti-dumping orders in order to construct the total value of the US market and the market shares in that year. To implement the Armington model under the second step, we need data on the value of US shipments in 2017 in order to construct the total value of the US market in 2017. Below, we explain how we obtained each of these data inputs.

7.15. With respect to the **value of US shipments in the year prior to the imposition of the anti-dumping orders**, the United States relies on the public version of the United States International Trade Commission's (USITC) investigation reports, industry-specific survey data by the

²⁶⁵ Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.

²⁶⁶ Coated Paper; OCTG; and Steel Cylinders.

US Census Bureau, data from the USITC DataWeb, and data provided by private companies to compute the value of US shipments.²⁶⁷ The United States makes further assumptions to derive the value of US shipments for the anti-dumping orders at issue for which there is no information available for the relevant years.²⁶⁸ China rejects the data provided by the United States on the grounds that the data sources are questionable and that the assumptions made by the United States are arbitrary and not verifiable.²⁶⁹ China generally proposes to use information available in USITC investigation reports where such information is available²⁷⁰, but proposes to use information by the Association of Home Appliance Manufacturers (AHAM) to infer the value of US shipments for one anti-dumping order, *Residential Washers*, because this information is confidential and not available in the relevant USITC report.²⁷¹

7.16. We note that data on the value of US shipments often needs to be inferred because such statistics are often not directly available, especially at the product-specific level. Having reviewed the parties' proposed data, we consider it appropriate to use the data reported in the publicly available USITC investigation reports for the 20 anti-dumping orders at issue where such data is available.²⁷² For the remaining five anti-dumping orders at issue, the data on US shipments reported in the USITC reports is not available because the data is confidential.²⁷³ For four of these five anti-dumping orders, the only data on record for the value of US shipments is that provided by the United States.²⁷⁴ Although China criticizes this data for not being publicly available or verifiable²⁷⁵, China has not provided evidence that this data is unreliable, nor suggested alternative data. For this reason, we consider the data provided by the United States to be the best available, and we therefore use the values of US shipments estimated by the United States on the basis of data from the relevant USITC investigation reports, annual surveys of manufacturers by the US Census Bureau, data from USITC DataWeb, and data from private companies.²⁷⁶ For the remaining anti-dumping order,

²⁶⁷ Calculations on US Shipments, (Exhibit USA-58).

²⁶⁸ United States' response to Arbitrator question No. 31(a), paras. 122-123.

²⁶⁹ China's written submission, paras. 182-183.

²⁷⁰ China's comments on the United States' response to Arbitrator question No. 65, paras. 77-78. China also proposes to apply its DID tabular approach for the anti-dumping orders for which there is no publicly available information on US shipments in the USITC investigation reports. (See Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI))).

²⁷¹ For *Residential Washers*, China proposes to estimate the value of US shipments by subtracting the value of US imports from the total value of the US market provided by AHAM. (China's comments on the United States' response to Arbitrator question No. 65, para. 80; and Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI))).

²⁷² *Aluminum Extrusions; Bags; Coated Paper; Furniture; OCTG; OTR Tires; PET Film; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Passenger Vehicle and Light Truck Tires; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.* (See Annex E-1, which reports the US shipment values in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values). For six of these 20 anti-dumping orders, namely *OCTG; PET Film; Shrimp; Sheet and Strip; Steel Line Pipe; and Steel Wire Rod*, the USITC investigation reports do not provide data for the full calendar year but only for the first six or nine months of the year. In such cases, we annualize the relevant data to estimate the annual value of US shipments by dividing the data by the corresponding number of months and multiplying the result by 12 (i.e. the number of months in a year). For one anti-dumping order, *Solar Panels*, the data from the USITC investigation report concerns solar modules, whereas the anti-dumping order covers solar cells whether or not assembled into modules. We note the USITC's explanation that the use of US domestic shipments data concerning only solar modules is meant to avoid double counting, since many domestically produced solar cells are used in the production of solar modules by the same firm. (See Calculations on US Shipments, (Exhibit USA-58); and USITC Publication 4360). We further note that neither party has proposed alternative data. For these reasons, we consider the data from the USITC investigation report on *Solar Panels* to be the best available, and use this data to determine the value of US shipments in the year prior to the imposition of the anti-dumping order. For one anti-dumping order, *Steel Wire Rod*, China argues that there is no information available on the value of US shipments in the year prior to the imposition of the anti-dumping order. (Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI))). However, we note that USITC publication 4509 does provide information on the value of US shipments for January to June 2014, the year prior to the imposition of the anti-dumping order. (See USITC publication 4509). As mentioned above, we annualize this data to estimate the total value of US shipments in the year prior to the imposition of the anti-dumping order.

²⁷³ *Diamond Sawblades; Ribbons; Steel Cylinders; Iron Pipe Fittings; and Residential Washers.*

²⁷⁴ *Diamond Sawblades; Ribbons; Steel Cylinders; and Iron Pipe Fittings.*

²⁷⁵ China's written submission, paras. 182-183.

²⁷⁶ More particularly, for *Diamond Sawblades*, we use the value of US shipments provided by the United States based on adjusted data from the relevant USITC investigation report. For *Ribbons*, we use the value of US shipments provided by the United States based on adjusted data from the US Census Bureau's Annual Survey of Manufacturers and the USITC DataWeb. For *Steel Cylinders*, we use the value of US

Residential Washers, we estimate the value of US shipments by subtracting the value of US imports from Chinese exporters and exporters from the rest of the world from the total value of the US market.²⁷⁷ The total value of the US market of *Residential Washers* is obtained from data compiled by AHAM²⁷⁸, and the value of US imports is obtained from data compiled by US Customs and the US Census Bureau.²⁷⁹

7.17. With respect to the **value of US shipments in 2017**, the United States also relies on the public version of the USITC investigation reports²⁸⁰, industry-specific survey data by the US Census Bureau, data from the USITC DataWeb, data provided by other US agencies, and data provided by private companies or industry associations.²⁸¹ China rejects the data provided by the United States on the grounds that the data sources are questionable and that the assumptions made by the United States are arbitrary and not verifiable.²⁸² China has not submitted any data from 2017 and instead proposes to use the values of the US market, including the value of US shipments, in the year prior to the imposition of the anti-dumping orders with adjustments for inflation by applying the United States' gross domestic product (GDP) deflator.²⁸³

7.18. In our view, China's suggestion to use inflation-adjusted values from the year prior to the imposition of the anti-dumping orders, rather than 2017 values, is not reasonable or objective. We recall that our mandate is to determine the level of nullification or impairment caused by the United States' failure to implement the DSB recommendations and rulings by the expiry of the reasonable period of time. We also recall that the parties agreed to use calendar year 2017 as the reference period.²⁸⁴ Thus, we consider it appropriate to use the actual 2017 values of the US market, including the actual 2017 value of US shipments, when applying the Armington model to simulate the impact of reducing the WTO-inconsistent anti-dumping duties from the actual 2017 duty rates to the counterfactual duty rates. If we were to use the values of the US market in the year prior to the imposition of the anti-dumping orders, inflation-adjusted or not, we would be simulating the impact of reducing the WTO-inconsistent anti-dumping duties at a point in time where these duties had not yet been imposed. In our view, this would not be in accordance with our mandate.

7.19. Having determined that it is not appropriate to use inflation-adjusted values from the year prior to the imposition of the anti-dumping orders, as proposed by China, we note that the only data on record for the value of US shipments in 2017 is that provided by the United States.²⁸⁵ Although China criticizes this data for not being publicly available or verifiable²⁸⁶, China has not provided evidence that this data is unreliable, nor suggested alternative data. For this reason, we consider the data provided by the United States to be the best available. We therefore use the 2017 values

shipments provided by the United States based on data from the annual report by the only US producer, Trimas Corporation. For *Iron Pipe Fittings*, we use the value of US shipments provided by the United States based on data from the US Census Bureau's Annual Survey of Manufacturers and the USITC DataWeb. (See Annex E-1, which reports the US shipment values in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values).

²⁷⁷ See Annex E-1, which reports the US shipment values in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values.

²⁷⁸ Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI)).

²⁷⁹ In paragraph 7.22 below, we describe how we estimate the value of US imports from China in the year prior to the imposition of the anti-dumping orders using data from US Customs. In paragraph 7.32 below, we describe how we estimate the value of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders using data from the US Census Bureau.

²⁸⁰ Data on the 2017 value of US shipments is not directly available in USITC investigation reports for some anti-dumping orders, and for these orders the United States applies assumptions based on data from the USITC investigation reports to derive the 2017 value of US shipments. (Calculations on US Shipments, (Exhibit USA-58)).

²⁸¹ Calculations on US Shipments, (Exhibit USA-58).

²⁸² China's written submission, paras. 182-183.

²⁸³ China's response to Arbitrator question No. 65, paras. 53-55; and comments on the United States' response to Arbitrator question No. 65, para. 86; Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)); and Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI)). For *Residential Washers*, China submits an estimate of the 2017 total market value based on data from AHAM.

²⁸⁴ See section 4 above.

²⁸⁵ Calculations on US Shipments, (Exhibit USA-58).

²⁸⁶ China's written submission, paras. 182-183.

of US shipments provided by the United States for all anti-dumping orders at issue²⁸⁷, except *Residential Washers*. To ensure consistency, for *Residential Washers*, we use the same data source that we used to construct the value of US shipments in the year prior to the imposition of the anti-dumping orders, by subtracting the 2017 value of US imports from Chinese exporters and exporters from the rest of the world, based on data from US Customs and the US Census Bureau²⁸⁸, from the total 2017 value of the US market, based on data from AHAM.²⁸⁹

7.1.1.2 Value of US imports from China

7.20. To implement the Armington model under the first step, we need data on the value of US imports from China in the year prior to the imposition of the anti-dumping orders in order to construct the total value of the US market and the market shares in that year. To implement the Armington model under the second step, we need data on the value of US imports from China in 2017 in order to construct the total value of the US market in 2017. Below, we explain how we obtained each of these data inputs.

7.21. With respect to the **value of US imports from China in the year prior to the imposition of the anti-dumping orders**, the United States points out that US Customs does not track the value of imports subject to anti-dumping duties in years before the duties are imposed. The United States therefore relies on aggregated data on US imports from China obtained from the US Census Bureau and applies the reference HTS codes used by US Customs to identify the scope of products that may be subject to anti-dumping duties.²⁹⁰ China proposes to use the value of US imports from China in the year prior to the imposition of the anti-dumping orders published in the relevant USITC investigation reports.²⁹¹ When such information is not available for confidentiality reasons, China proposes to use company-specific trade data compiled by US Customs and aggregate this data to determine the value of US imports from China.²⁹²

7.22. For consistency, we follow the same approach as we followed to obtain the value of US shipments and rely on the relevant USITC investigation reports to retrieve information for nine anti-dumping orders where such information is available.²⁹³ For the remaining 16 anti-dumping

²⁸⁷ More particularly, for 13 anti-dumping orders, *Aluminum Extrusions; Bags; Coated Paper; Diamond Sawblades; Furniture; OTR Tires; PET Film; Wood Flooring; Copper Pipe and Tube; Passenger Vehicle and Light Truck Tires; Steel Flat Products; Steel Pipe; and Steel Standard, Line, and Pressure Pipe*, we use the value of US shipments provided by the United States based on adjusted data for 2017 or earlier years from the relevant USITC investigation reports. For three anti-dumping orders, *OCTG; Steel Cylinders; and Steel Line Pipe*, we use the value of US shipments provided by the United States based on data from private companies. For three anti-dumping orders, *Ribbons; Iron Pipe Fittings; and Steel Nails*, we use the value of US shipments provided by the United States based on adjusted data from the US Census Bureau's Annual Survey of Manufacturers. For three anti-dumping orders, *Sheet and Strip; Steel Products; and Steel Wire Rod*, we use the value of US shipments provided by the United States based on data from the USITC DataWeb and the American Iron and Steel Institute. For *Shrimp*, we use the value of US shipments provided by the United States based on data from the National Oceanic and Atmospheric Administration. For *Solar Panels*, we use the value of US shipments provided by the United States based on price and production quantity data from the US Department of Energy and the International Energy Agency. (See Annex E-8, which reports the US shipment values in 2017 and the data sources used to estimate these values).

²⁸⁸ In paragraph 7.29 below, we describe how we estimate the value of US imports from China in 2017 using data from US Customs. In paragraph 7.34 below, we describe how we estimate the value of US imports from the rest of the world in 2017 using data from the US Census Bureau.

²⁸⁹ See Annex E-8, which reports the values of US shipments in 2017 and the data sources used to estimate these values.

²⁹⁰ Table of US imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57).

²⁹¹ China's comments on the United States' response to Arbitrator question No. 65, paras. 77-78. We note that China only uses the trade data reported in the USITC investigation report when the latter also provides information on US shipments.

²⁹² China's communication of 13 June 2019, pp. 2-3; Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)); and Table of US imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57). China initially proposed to use data on US imports from China from the US Census Bureau. (Table of US imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57)).

²⁹³ *Aluminum Extrusions; Coated Paper; OTR Tires; Wood Flooring; Copper Pipe and Tube; Passenger Vehicle and Light Truck Tires; Steel Flat Products; Steel Pipe; and Steel Standard, Line and Pressure Pipe*. (See Annex E-1, which reports the values of US imports from China in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values).

orders²⁹⁴, the information on the value of US imports from China is not available in the USITC reports for the full calendar year or not available at all for confidentiality reasons. Turning to the alternative data sources proposed by the parties, we note that the United States' proposed import data from the US Census Bureau is aggregated using the HTS codes used by US Customs to identify the scope of products that may be subject to anti-dumping duties.²⁹⁵ As explained by the United States, this data might overestimate the value of US imports from China since some of the imported products may not be the type of products actually subject to anti-dumping duties.²⁹⁶ We further note that, while the United States initially explained that it did not have access to company-specific trade data on US imports from China for the year prior to the imposition of anti-dumping orders at issue²⁹⁷, it has subsequently provided confidential company-specific trade data compiled by US Customs²⁹⁸, and China proposes to use this data.²⁹⁹ We also consider this company-specific information to be the best available, and aggregate this data to determine the value of US imports from China whenever the relevant USITC investigation reports do not provide the necessary data.³⁰⁰

7.23. To implement the first step, we further need to distinguish between the *value of US imports from the Chinese exporters subject to the WTO-inconsistent anti-dumping duties* and the *value of US imports from the remaining Chinese exporters*. For the 22 anti-dumping orders that concern only the USDOC's use of the WTO-inconsistent Single Rate Presumption³⁰¹, we therefore need to distinguish between the value of US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates and the value of US imports from the remaining Chinese exporters. For the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption³⁰², we need to distinguish between the value of US imports from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates, the value of US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates, and the value of US imports from the remaining Chinese exporters.

7.24. To determine the *value of US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates* for all of the anti-dumping orders at issue, we apply the maximum share covered by the PRC-wide entity during the investigation period to the total value of US imports from China in the year prior to the imposition of the anti-dumping orders. This maximum share is calculated as the maximum share of the PRC-wide entity over total US imports from China during the period of investigation. This maximum share will necessarily be an approximation because

²⁹⁴ *Bags; Diamond Sawblades; Furniture; OCTG; PET Film; Ribbons; Shrimp; Solar Panels; Steel Cylinders; Iron Pipe Fittings; Residential Washers; Sheet and Strip; Steel Line Pipe; Steel Nails; Steel Products; and Steel Wire Rod.*

²⁹⁵ Table of US imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57).

²⁹⁶ United States' response to Arbitrator question No. 71(a), para. 142.

²⁹⁷ United States' response to Arbitrator question No. 39(b), para. 152.

²⁹⁸ See Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI)).

²⁹⁹ China's communication of 13 June 2019, p. 3. For *Solar Panels*, China initially suggested that the USITC investigation report contained publicly available information regarding the value of US imports from China and provided such data in Exhibit CHN-55 (BCI). China subsequently indicated that it had made an "important typographical error" in Exhibit CHN-55 (BCI). (China's communication of 13 June 2019, p. 3). Although China did not specify the nature of its "important typographical error", it is clear from the USITC investigation report on *Solar Panels* that it does not contain publicly available information on the value of imports of solar cells from China, only the value of imports of solar modules from China. (Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI))). The data proposed by China, in turn, reflects the value reported by the USITC for solar modules, not solar cells. It is not uncommon for solar cells to be imported as such, for assembly into solar modules in the United States, and we therefore do not believe it would be appropriate to use the data reported for solar modules in the USITC investigation report and in Exhibit CHN-55 (BCI). Seeing as the data on the value of imports of solar cells from China is not available in the USITC investigation report, we instead aggregate the confidential company-specific trade data on US imports from China compiled by US Customs. (Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI))).

³⁰⁰ See Annex E-1, which reports the values of US imports from China in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values.

³⁰¹ *Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.*

³⁰² *Coated Paper; OCTG; and Steel Cylinders.*

US Customs does not track the value of imports subject to anti-dumping duties before such duties are actually imposed.³⁰³

7.25. The United States has provided approximations of the maximum share of the PRC-wide entity for all anti-dumping orders at issue.³⁰⁴ More particularly, for each anti-dumping order, the United States approximates the total value of imports from China during the period of investigation based on aggregated USITC DataWeb monthly trade data for the HTS codes used by the USDOC in the investigation. Using company-specific trade data from the period of investigation, reported by the exporters themselves, the United States subtracts the value of US imports from exporters outside the PRC-wide entity from the approximated total value of imports from China, and uses the remaining value to calculate the maximum share of the PRC-wide entity.³⁰⁵ For 19 of the anti-dumping orders at issue³⁰⁶, China does not object to the maximum share of the PRC-wide entity approximated by the United States³⁰⁷, and we also consider it reasonable to use this data.³⁰⁸ For the remaining six anti-dumping orders at issue³⁰⁹, the United States estimates the maximum share of the PRC-wide entity during the period of investigation to be [[***]]%.³¹⁰ According to the United States, this is because the combined shares calculated for exporters outside the PRC-wide entity exceed [[***]]% of US imports from China during the period of investigation.³¹¹ China objects to the use of a [[***]]% maximum share for these six anti-dumping orders, and instead proposes to replace the [[***]]% maximum share with the average maximum share of the PRC-wide entity for the remaining anti-dumping orders.³¹² We are not convinced of the accuracy of the United States' approximated [[***]]% maximum shares for the six anti-dumping orders, nor of the United States' explanation thereof. More particularly, an analysis of company-specific trade data on US imports

³⁰³ United States' response to Arbitrator question No. 71(a), para 142.

³⁰⁴ Calculated Maximum Share Covered by the PRC-Wide Entity, (Exhibit USA-54 (BCI)).

³⁰⁵ See United States' response to Arbitrator question No. 61, paras. 46-48; and Calculated Maximum Share Covered by the PRC-Wide Entity, (Exhibit USA-54 (BCI)). We note that Exhibit USA-54 (BCI) states that it contains the maximum share of the cooperating as well as the non-cooperating Chinese exporters within the PRC-wide entity. We further note that the United States has provided additional exhibits setting out its approach for isolating the share of the PRC-wide entity representing only the cooperating Chinese exporters within the PRC-wide entity, and has suggested that Exhibit USA-54 (BCI), to some extent, excludes the shares of at least certain non-cooperating exporters within the PRC-wide entity. (United States' response to Arbitrator question No. 61, para. 48; and communication of 11 June 2019, pp. 1-2; Calculated Maximum Share Covered by the PRC-Wide Entity, (Exhibit USA-56 (BCI)); and Approach for Estimating the Maximum Share of the PRC-Wide Entity, (Exhibit USA-86)). In its comments on the United States' explanations, China requests that Exhibits USA-56 (BCI) and USA-86 be "ignored" and that "only the percentages set forth in Exhibit USA-54 should be utilized to calculate the PRC-entity share". (China's communication of 13 June 2019, p. 4). We recall that we have rejected the United States' proposed counterfactual of distinguishing between cooperating and non-cooperating Chinese exporters within the PRC-wide entity and reducing the WTO-inconsistent PRC-wide duty rates only for the cooperating Chinese exporters. Instead we have determined that the WTO-inconsistent PRC-wide duty rates should be reduced for all Chinese exporters within the PRC-wide entity. Bearing this, as well as China's comments, in mind, we use only the maximum shares of the PRC-wide entity set forth in Exhibit USA-54 (BCI).

³⁰⁶ *Aluminum Extrusions; Bags; Coated Paper; OCTG; OTR Tires; PET Film; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.* (China's communication of 13 June 2019, p. 4). We note that China submits that Exhibit USA-54 (BCI) does not contain information concerning *Aluminum Extrusions*, and that the Arbitrator should therefore use the average of the maximum shares of the PRC-wide entity provided by the United States for the remaining anti-dumping orders, calculated by China to be 44%. We further note that while Exhibit USA-54 (BCI) does not contain the maximum share of the PRC-wide entity for *Aluminum Extrusions*, the United States has explained that the maximum share of the PRC-wide entity is [[***]]% for *Aluminum Extrusions*. (United States' response to Arbitrator question No. 62, para. 70). Generally, China does not object to the use of the maximum shares of the PRC-wide entity provided by the United States, where such shares are above [[***]]%. (China's comments on the United States' response to Arbitrator question No. 61, paras. 40-41; and communication of 13 June 2019, p. 4). We therefore understand China's comment regarding *Aluminum Extrusions* to be an inadvertent error, and consider it appropriate to use [[***]]% as the maximum share of the PRC-wide entity in *Aluminum Extrusions*.

³⁰⁷ China's comments on the United States' response to Arbitrator question No. 61, para. 35.

³⁰⁸ See Annex E-2, which reports the shares of Chinese exporters subject to the PRC-wide duty rate in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these shares.

³⁰⁹ *Diamond Sawblades; Furniture; Ribbons; Shrimp; Steel Cylinders; and Residential Washers.*

³¹⁰ Calculated Maximum Share Covered by the PRC-Wide Entity, (Exhibit USA-54 (BCI)).

³¹¹ United States' response to Arbitrator question No. 61(b), para. 49.

³¹² China's comments on the United States' response to Arbitrator question No. 61, paras. 40-41; and Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)).

from China compiled by US Customs shows that some Chinese companies within the PRC-wide entity had shipment values of above [***] US dollars to the United States in the year prior to the imposition of the anti-dumping orders.³¹³ Rather than using an average pertaining to other anti-dumping orders, as China proposes, we consider it more appropriate to approximate, for each of the six anti-dumping orders, the share of US imports from China covered by the PRC-wide entity. More particularly, we identify the names of all the Chinese exporters outside the PRC-wide entity³¹⁴ and compare these with the names and shipment values of all the Chinese companies that exported to the United States in the year prior to the imposition of the anti-dumping orders.³¹⁵ By subtracting the combined value of US shipments from the Chinese exporters outside the PRC-wide entity from the total value of US imports from China, we determine the share covered by the PRC-wide entity in the year prior to the imposition of the anti-dumping orders.³¹⁶

7.26. To determine the *value of US imports from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates* in the three anti-dumping orders where the USDOC used this methodology³¹⁷, we first determine the value of US imports from the Chinese exporters outside the PRC-wide entity by subtracting the share of the PRC-wide entity, determined in accordance with the preceding paragraph, from the total value of US imports from China in the year prior to the imposition of the anti-dumping orders. We then identify the names of all the exporters subject to the WTO-inconsistent WA-T duty rates³¹⁸ and the names of all other Chinese exporters outside the PRC-wide entity³¹⁹ and compare these with the names and shipment values of all the Chinese companies that exported to the United States in the year prior to the imposition of the anti-dumping orders.³²⁰ Finally, we apply the relative share of the exporters subject to the WTO-inconsistent WA-T duty rates to the value of US imports from the Chinese exporters outside the PRC-wide entity to obtain the value of US imports from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates.³²¹

7.27. Lastly, we determine the *value of US imports from the remaining Chinese exporters*. For the 22 anti-dumping orders that concern only the USDOC's use of the WTO-inconsistent Single Rate Presumption³²², we subtract the share of the PRC-wide entity, determined in accordance with paragraph 7.25 above, from the total value of US imports from China in the year prior to the

³¹³ The analysis is based on company-specific trade data on US imports from China compiled by US Customs. (Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI))).

³¹⁴ See Annex E-3, which reports the names of all the Chinese exporters outside the PRC-wide entity and the data sources used to identify these exporters.

³¹⁵ Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI)). When comparing the names and shipment values of the Chinese exporters outside the PRC-wide entity, we have disregarded obvious typos in the company-specific data compiled by US Customs as well as discrepancies between frequently used abbreviations such as Co., Ltd., etc.

³¹⁶ See Annex E-2, which reports the shares of Chinese exporters subject to the PRC-wide duty rate in the year prior to the imposition of the anti-dumping orders as well as the data sources used to estimate these shares.

³¹⁷ *Coated Paper; OCTG; and Steel Cylinders*.

³¹⁸ As explained in section 5.2.1 above, in *Coated Paper*, the WTO-inconsistent WA-T duty rate was assigned to APP-China and to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination; in *OCTG*, the WTO-inconsistent WA-T duty rate was assigned to TPCO and to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination; and in *Steel Cylinders*, the WTO-inconsistent WA-T duty rate was assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination. (See Annex E-4, which reports the names of the Chinese exporters subject to the WA-T duty rates as well as the data sources used to identify these exporters).

³¹⁹ See Annex E-4, which reports the names of all other Chinese exporters outside the PRC-wide entity as well as the data sources used to identify these exporters.

³²⁰ Excel File with Import Data in the Year Preceding the Imposition of Anti-Dumping Duties, (Exhibit USA-94 (BCI)). When comparing the names and shipment values of the Chinese exporters subject to the WA-T duty rates and the remaining Chinese exporters outside the PRC-wide entity, we have disregarded obvious typos in the company-specific data compiled by US Customs as well as discrepancies between frequently used abbreviations such as Co., Ltd., etc.

³²¹ See Annex E-2, which reports the shares of the Chinese exporters subject to the WA-T duty rates in the year prior to the imposition of the anti-dumping orders as well as the data sources used to estimate these shares.

³²² *Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod*.

imposition of the anti-dumping orders.³²³ For the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption³²⁴, we apply the relative share of the remaining Chinese exporters, determined in accordance with paragraph 7.26 above, to the value of US imports from the Chinese exporters outside the PRC-wide entity in order to obtain the value of US imports from the remaining Chinese exporters.³²⁵

7.28. With respect to the **value of US imports from China in 2017**, the United States has provided US Customs data.³²⁶ China criticizes the data provided by the United States on the grounds that the data sources are questionable and not verifiable.³²⁷ As was the case for the value of US shipments in 2017, China does not propose any data for the value of US imports from China in 2017, instead proposing to use inflation-adjusted values from the year prior to the imposition of the anti-dumping orders.³²⁸

7.29. As explained above, we do not consider it appropriate to use inflation-adjusted values from the year prior to the imposition of the anti-dumping orders, as China proposes. For the value of US imports from China in 2017, we therefore only have the data on record that is provided by the United States.³²⁹ Although China criticizes this data for not being publicly available or verifiable³³⁰, we note that China has not provided evidence that this data is unreliable, nor suggested alternative data. For this reason, we consider the data provided by the United States to be the best available. We therefore use the product-specific, confidential trade data reported by US Customs for all anti-dumping orders at issue.³³¹

7.1.1.3 Value of US imports from the rest of the world

7.30. To implement the Armington model under the first step, we need data on the value of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders to construct the total value of the US market and the market shares in that year. To implement the Armington model under the second step, we need data on the value of US imports from the rest of the world in 2017 in order to construct the total value of the US market in 2017. Below, we explain how we obtained each of these data inputs.

7.31. With respect to the **value of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders**, the United States proposes to use aggregate data reported by the US Census Bureau based on the reference HTS codes US Customs used to identify shipments that may be subject to anti-dumping duties.³³² China proposes to use information available in USITC investigation reports.³³³ When such information is not available for the relevant

³²³ See Annex E-2, which reports the shares of the remaining Chinese exporters in the year prior to the imposition of the anti-dumping orders as well as the data sources used to estimate these shares.

³²⁴ *Coated Paper; OCTG; and Steel Cylinders*.

³²⁵ See Annex E-2, which reports the shares of the remaining Chinese exporters in the year prior to the imposition of the anti-dumping orders as well as the data sources used to estimate these shares.

³²⁶ Updated Table of US Customs Data on US Imports from China, (Exhibit USA-30 (BCI)); and United States' response to the Arbitrator question No. 62, para. 67.

³²⁷ China contends that the United States fails to provide the back-up data on the US imports for individual Chinese exporters in 2017 in order to verify its calculation. (China's written submission, para. 245).

³²⁸ China's response to Arbitrator question No. 65, paras. 53-55; and comments on the United States' response to Arbitrator question No. 65, para. 86; Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)); and Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI)). For *Residential Washers*, China submits an estimate of the 2017 total market value based on data from AHAM. (Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI))).

³²⁹ Updated Table of US Customs Data on US Imports from China, (Exhibit USA-30 (BCI)).

³³⁰ China's written submission, paras. 182-183.

³³¹ See Annex E-8, which reports the values of US imports from China in 2017 and the data sources used to estimate these values.

³³² Table of US Imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57). The United States explains that the HTS aggregated data may overstate the value of shipments subject to anti-dumping duties, since some of these shipments may not actually be subject to anti-dumping duties. (United States' response to Arbitrator question No. 71(a), para. 142).

³³³ China's comments on the United States' response to Arbitrator question No. 65, paras. 77-78; and Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)).

calendar year, or is confidential, China agrees to use the HTS aggregated data from the US Census Bureau proposed by the United States.³³⁴

7.32. For consistency, we follow the same approach that we followed for data on the value of US imports from China, and rely on the relevant USITC investigation reports to obtain information for the nine anti-dumping orders at issue where such information is available.³³⁵ For five of the anti-dumping orders at issue³³⁶, the value of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders is not directly available from the USITC reports, and we construct these values by subtracting the value of US imports from China, obtained from US Customs data, from the total value of US imports published in the USITC investigation reports.³³⁷ For the remaining 11 anti-dumping orders at issue³³⁸, the information on the total value of US imports and the value of US imports from the rest of the world is not available in the relevant USITC reports for the full calendar year or not available at all for confidentiality reasons, and we therefore use the value of US imports from the rest of the world based on aggregated trade data reported by the US Census Bureau based on the reference HTS codes used by US Customs to identify shipments that may be subject to anti-dumping duties.³³⁹

7.33. With respect to **the value of US imports from the rest of the world in 2017**, the United States proposes to use aggregated trade data reported by the US Census Bureau based on the reference HTS codes used by US Customs to identify shipments that may be subject to anti-dumping duties.³⁴⁰ By subtracting the value of shipments that may be subject to anti-dumping duties from the total value of US imports, the United States approximates the value of US imports from the rest of the world.³⁴¹ China rejects the data provided by the United States on the grounds that the data sources are questionable and that the assumptions made by the United States are arbitrary and not verifiable.³⁴² As was the case for the value of US shipments in 2017 and the value of US imports from China in 2017, China has not submitted any data on the value of US imports from the rest of the world in 2017 and instead proposes to use the inflation-adjusted values from the year prior to the imposition of the anti-dumping orders.³⁴³

7.34. As explained above, we do not consider it appropriate to use inflation-adjusted values from the year prior to the imposition of the anti-dumping orders, as proposed by China. For the value of US imports from the rest of the world in 2017, we therefore only have the data on record that is provided by the United States.³⁴⁴ Although China criticizes this data for not being publicly available

³³⁴ Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)); and Table of US Imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57). We note that for some anti-dumping orders, China estimates the value of the US imports from the rest of the world by subtracting the value of US imports from China, based on US Census data, from the total value of US imports reported in the USITC report. (Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI))).

³³⁵ *Aluminum Extrusions; Coated Paper; OTR Tires; Wood Flooring; Copper Pipe and Tube; Passenger Vehicle and Light Truck Tires; Steel Flat Products; Steel Pipe; and Steel Standard, Line, and Pressure Pipe.* (See Annex E-1, which reports the values of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values).

³³⁶ *Bags; Furniture; Ribbons; Steel Nails; and Steel Products.*

³³⁷ See Annex E-1, which reports the values of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values.

³³⁸ *Diamond Sawblades; OCTG; PET Film; Iron Pipe Fittings; Shrimp; Solar Panels; Steel Cylinders; Residential Washers; Sheet and Strip; Steel Line Pipe; and Steel Wire Rod.*

³³⁹ See Annex E-1, which reports the values of US imports from the rest of the world in the year prior to the imposition of the anti-dumping orders and the data sources used to estimate these values.

³⁴⁰ Table of US Imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57).

³⁴¹ Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC, (Exhibit USA-13 (BCI)); Revised Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC, (Exhibit USA-31 (BCI)); and Table of US Imports from China, World, and Rest of the World in Selected Years, (Exhibit USA-57).

³⁴² China's written submission, paras. 182-183.

³⁴³ China's response to Arbitrator question No. 65, paras. 53-55; and comments on the United States' response to Arbitrator question No. 65, para. 86; Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-55 (BCI)); and Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI)). For *Residential Washers*, China submits an estimate of the 2017 total market value based on data from AHAM. (Supporting Documents for Data Required for Implementing the Armington Model Under Two Steps, (Exhibit CHN-56 (BCI))).

³⁴⁴ Updated Table of US Customs Data on US Imports from China, (Exhibit USA-30 (BCI)).

or verifiable³⁴⁵, China has not provided evidence demonstrating that this data is unreliable, nor suggested alternative data. For this reason, we consider the data provided by the United States to be the best available. We therefore use the value of US imports from the rest of the world in 2017 based on HTS aggregated data reported by the US Census Bureau.³⁴⁶

7.1.2 Elasticities

7.35. Elasticity measures how responsive an economic variable is to a change in another variable. The elasticity value is not directly observable and can either be estimated empirically or inferred from existing estimates reported in the literature. As explained above, we need the total demand elasticity, the elasticity of substitution, and the supply elasticities for each anti-dumping order at issue. For supply elasticities, we need the domestic supply elasticity as well as the supply elasticities for different sources of US imports.

7.36. With respect to **the total demand elasticity, the elasticity of substitution, and the domestic supply elasticity**, the United States proposes to use, for each anti-dumping order at issue, the midpoint value of the range of elasticity estimates published in the relevant USITC investigation reports.³⁴⁷ Rather than using the midpoint value, China proposes to apply the Armington model using the highest and lowest of the elasticity estimates published in the USITC investigation reports, and use the simple average of the two results as the estimated level of nullification or impairment.³⁴⁸ However, China has not provided any evidence to demonstrate that this would be a more appropriate way to apply the Armington model.³⁴⁹ Further, China argues that the elasticities proposed by the United States are old and thus inappropriate to use when applying the Armington model to the 2017 US market under the second step.³⁵⁰ China has, however, not provided any evidence suggesting that these elasticity values are inappropriate, nor has it presented alternative elasticity estimates. We therefore use, for each anti-dumping order at issue, the midpoint value of the elasticity estimates published in the relevant USITC reports when applying the Armington model under both the first and the second step.³⁵¹

7.37. With respect to **the supply elasticities for different sources of US imports**, the United States proposes to use the same value of 10 as the supply elasticity for (i) US imports from the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates, (ii) US imports from the remaining Chinese exporters, and (iii) US imports from the rest of the world.³⁵² The United States does not explicitly propose a value as the supply elasticity for US imports from the Chinese exporters subject to the WTO-inconsistent WA-T duty rates, which we need for the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption.³⁵³ Although China rejects the notion of using the exact same value as the supply elasticity for all varieties of US imports, it has not provided any alternative estimates.³⁵⁴ We further note that, as pointed out by the United States, import supply

³⁴⁵ China's written submission, paras. 182-183.

³⁴⁶ See Annex E-8, which reports the values of US imports from the rest of the world in 2017 and the data sources used to estimate these values. We note that for *Aluminum Extrusions*, the United States provides two sets of data on the value of imports, one pertaining to the HTS reference codes active in 2011, the initial period following the imposition of the anti-dumping order, and the other pertaining to the HTS reference codes active in 2017. According to the United States, there were no expansions of the product scope for *Aluminum Extrusions* between the imposition of the anti-dumping order and 2017. (United States' response to Arbitrator question No. 62, paras. 59-64). For consistency, we use the data pertaining to the HTS reference codes active in 2011 because this value is closer to the actual value of US imports subject to anti-dumping duties reported by US Customs.

³⁴⁷ United States' written submission, paras. 82-84; and Table of Elasticities, (Exhibit USA-16).

³⁴⁸ China's response to Arbitrator question No. 65, para. 56.

³⁴⁹ We further note that the approach suggested by China would result in a lower estimated level of nullification or impairment compared with the approach of using the midpoint value of the elasticity estimates published in the relevant USITC reports.

³⁵⁰ China's opening statement at the meeting of the Arbitrator, para. 58.

³⁵¹ See Annex E-5, which reports the values for the total demand elasticity, the elasticity of substitution, and the domestic supply elasticity and as well as the data sources used to estimate these values.

³⁵² Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC, (Exhibit USA-13 (BCI)); and Revised Appendices with Domestic Shipment and Import Data, Elasticity Parameters, and Model Results for Each Modelling Scenario, sourced from the USITC, (Exhibit USA-31 (BCI)).

³⁵³ *Coated Paper; OCTG; and Steel Cylinders*.

³⁵⁴ China's written submission, paras. 176-177.

elasticities are generally more elastic than domestic supply elasticities³⁵⁵ and it is common practice in applied economic modelling to assign the value of parameters for which formal estimates are not available when those parameters, such as the supply elasticities, are not central to the analysis.³⁵⁶ In light of this, we consider it appropriate to use the value of 10 as the supply elasticity for all the varieties of US imports. We use the supply elasticity of 10 when applying the Armington model under both the first and the second step.

7.1.3 Anti-dumping duty rates

7.38. To implement the Armington model under the first step, we need the actual duty rates assigned to Chinese exporters. To implement the Armington model under the second step, we also need the counterfactual duty rates, which replace the WTO-inconsistent duty rates.

7.39. With respect to **the actual duty rates**, the United States has provided data based on publicly available USDOC records from the relevant anti-dumping investigations and administrative reviews. More particularly, the United States has provided the PRC-wide duty rates assigned to the Chinese exporters within the PRC-wide entity and the duty rates assigned to all other Chinese exporters outside the PRC-wide entity.³⁵⁷ Based on the latter duty rates, the United States has also provided a simple average of the duty rates assigned to the Chinese exporters outside the PRC-wide entity.³⁵⁸ China has not objected to this data.

7.40. For the 22 anti-dumping orders that concern only the USDOC's use of the WTO-inconsistent Single Rate Presumption³⁵⁹, we use the data on the PRC-wide duty rates, provided by the United States, for the Chinese exporters within the PRC-wide entity, and we use the simple average of the duty rates assigned to Chinese exporters outside the PRC-wide entity, provided by the United States, for the remaining Chinese exporters.³⁶⁰

7.41. For the three anti-dumping orders that concern the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption³⁶¹, we also use the data on the PRC-wide duty rates, provided by the United States, for the Chinese exporters within the PRC-wide entity.³⁶² We use the data on the WA-T duty rates, provided by the United States, for the Chinese exporters subject to these WTO-inconsistent WA-T duty rates.³⁶³ For

³⁵⁵ United States' response to Arbitrator question No. 46(a), para. 185.

³⁵⁶ In addition, as demonstrated by the United States, applying the Armington model using the same values for the import supply elasticities as those used for the domestic supply elasticity, rather than the value of 10, would result in a lower estimated level of nullification or impairment. (Tables Presenting Armington Model with Import Supply Elasticity at 10, Inputs for the Armington Model, Armington Model with Import Supply Elasticity Equal to US Domestic Supply Elasticity, and Armington Model with Infinite Import Supply Elasticity, (Exhibit USA-52 (BCI))).

³⁵⁷ Anti-Dumping Duty Rates Assigned by the USDOC to Chinese Firms Subject to Anti-Dumping Duties, (Exhibit USA-77 (BCI)); and Excel File with Simple Average of Duty Rates for Chinese Exporters Outside the PRC-Wide Entity, (Exhibit USA-92 (BCI)).

³⁵⁸ Excel File with Simple Average of Duty Rates for Chinese Exporters Outside the PRC-Wide Entity, (Exhibit USA-92 (BCI)).

³⁵⁹ *Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.*

³⁶⁰ Anti-Dumping Duty Rates Assigned by the USDOC to Chinese Firms Subject to Anti-Dumping Duties, (Exhibit USA-77 (BCI)); and Excel File with Simple Average of Duty Rates for Chinese Exporters Outside the PRC-Wide Entity, (Exhibit USA-92 (BCI)). See also Annex E-6. For two anti-dumping orders, *Aluminum Extrusions* and *Sheet and Strip*, the relevant data was missing from Exhibits USA-77 (BCI) and USA-92 (BCI). We have obtained the relevant data from publicly available USDOC records from the relevant anti-dumping investigations and administrative reviews. More particularly, we use the PRC-wide duty rate assigned in the most recent 2015-2016 administrative review for *Aluminum Extrusions* and the PRC-wide duty rate assigned in the original investigation for *Sheet and Strip*. For the remaining Chinese exporters, we have, for both anti-dumping orders, calculated the simple average using the approach that the United States followed in Exhibits USA-77 (BCI) and USA-92 (BCI). (See Annex E-7).

³⁶¹ *Coated Paper; OCTG; and Steel Cylinders.*

³⁶² Anti-Dumping Duty Rates Assigned by the USDOC to Chinese Firms Subject to Anti-Dumping Duties, (Exhibit USA-77 (BCI)); and Excel File with Simple Average of Duty Rates for Chinese Exporters Outside the PRC-Wide Entity, (Exhibit USA-92 (BCI)).

³⁶³ As explained in section 5.2.1 above, in *Coated Paper*, the WTO-inconsistent WA-T duty rate was assigned to APP-China and to the Chinese exporters that passed the Separate Rate Test but were not chosen

the remaining Chinese exporters, we recalculate the simple average of the duty rates assigned to Chinese exporters outside the PRC-wide entity, provided by the United States, in order to reflect only the duty rates of exporters outside the PRC-wide entity other than those subject to the WTO-inconsistent WA-T duty rates.³⁶⁴

7.42. With respect to **the counterfactual duty rates**, we use the duty rates determined in section 5.3 above. More particularly, for the 22 anti-dumping orders that concern only the USDOC's use of the WTO-inconsistent Single Rate Presumption³⁶⁵, we use a 0.00% counterfactual duty rate for the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rates. For *Coated Paper*, which concerns the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption, we use a 0.00% duty rate as the counterfactual duty rate for the Chinese exporters subject to the WA-T duty rate, namely APP-China and the exporters that passed the Separate Rate Test but were not chosen for individual examination, and we use a 0.00% counterfactual duty rate for the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rate. For *OCTG*, which concerns the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption, we use a [[***]]% duty rate as the counterfactual duty rate for the Chinese exporters subject to the WA-T duty rate, namely TPCO and the exporters that passed the Separate Rate Test but were not chosen for individual examination, and we use a 0.00% counterfactual duty rate for the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rate. For *Steel Cylinders*, which concerns the USDOC's use of the WTO-inconsistent WA-T methodology with zeroing as well as the WTO-inconsistent Single Rate Presumption, we use a 0.00% duty rate as the counterfactual duty rate for the Chinese exporters subject to the WA-T duty rate, namely the exporters that passed the Separate Rate Test but were not chosen for individual examination, and we use a 0.00% counterfactual duty rate for the Chinese exporters subject to the WTO-inconsistent PRC-wide duty rate.

7.2 Implementation of the Armington model under the two steps

7.43. Having identified the required data inputs, we proceed to implement the Armington model under the two steps.³⁶⁶

7.44. As the first step, we apply the Armington model to the US market as it existed prior to the imposition of the anti-dumping orders in order to simulate, for each anti-dumping order, the impact of imposing the relevant anti-dumping duties on the market shares of the Chinese exporters (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters from the rest of the world, and the US producers.³⁶⁷ We then apply the market shares of the Chinese exporters simulated under the first step to the actual 2017 total value of the US market in order to obtain the simulated 2017 total value of US imports from China.

7.45. As the second step, we apply the Armington model to the actual 2017 US market with the market shares simulated under the first step in order to simulate, for each anti-dumping order, the impact of reducing the WTO-inconsistent anti-dumping duties from the actual duty rates to the counterfactual duty rates on the value of US imports from China (both the Chinese exporters subject to the WTO-inconsistent anti-dumping duties and the remaining Chinese exporters), the exporters

for individual examination; in *Steel Cylinders*, the WTO-inconsistent WA-T duty rate was assigned to the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination; in *OCTG*, the WTO-inconsistent WA-T duty rate was assigned to TPCO and the Chinese exporters that passed the separate rate test but were not chosen for individual examination. Based on publicly available USDOC records of the relevant anti-dumping investigations and administrative reviews, we have identified all the Chinese exporters that passed the Separate Rate Test but were not chosen for individual examination. (See Annex E-4).

³⁶⁴ Based on publicly available USDOC records of the relevant anti-dumping investigations and administrative reviews, we have identified the Chinese exporters that received neither the WTO-inconsistent PRC-wide duty rate nor the WTO-inconsistent WA-T duty rate in *Steel Cylinders* and *OCTG*. In *Coated Paper*, there are no such Chinese exporters. (See Annex E-4).

³⁶⁵ *Aluminum Extrusions; Bags; Diamond Sawblades; Furniture; OTR Tires; PET Film; Ribbons; Shrimp; Solar Panels; Wood Flooring; Copper Pipe and Tube; Iron Pipe Fittings; Passenger Vehicle and Light Truck Tires; Residential Washers; Sheet and Strip; Steel Flat Products; Steel Line Pipe; Steel Nails; Steel Pipe; Steel Products; Steel Standard, Line, and Pressure Pipe; and Steel Wire Rod.*

³⁶⁶ The STATA code (do-file) used to implement the Armington model is reported in Annex E-9. The results were also replicated using the software Excel and R.

³⁶⁷ These simulated market shares are presented in Annex E-11.

from the rest of the world, and the US producers.³⁶⁸ The value of US imports from China simulated under the second step corresponds to the counterfactual value of US imports from China.

7.46. We then estimate the level of nullification or impairment concerning the anti-dumping orders at issue by calculating, for each order, the difference between the 2017 value of US imports from China, simulated under the first step, and the counterfactual value of US imports from China, simulated under the second step.

7.47. The table below presents the level of nullification or impairment estimated for each anti-dumping order at issue by applying the Armington model in two steps, as well as the total estimated level of nullification or impairment.

Table 3: Estimated level of nullification or impairment

Anti-dumping order	Level of nullification or impairment (million USD)
<i>Aluminum Extrusions</i>	498.412
<i>Bags</i>	82.168
<i>Coated Paper</i>	48.036
<i>Diamond Sawblades</i>	17.555
<i>Furniture</i>	438.783
<i>OCTG</i>	447.896
<i>OTR Tires</i>	46.656
<i>PET Film</i>	20.005
<i>Ribbons</i>	7.319
<i>Shrimp</i>	126.215
<i>Solar Panels</i>	714.605
<i>Steel Cylinders</i>	5.608
<i>Wood Flooring</i>	76.192
<i>Copper Pipe and Tube</i>	16.567
<i>Iron Pipe Fittings</i>	28.380
<i>Passenger Vehicle and Light Truck Tires</i>	45.075
<i>Residential Washers</i>	85.023
<i>Sheet and Strip</i>	30.167
<i>Steel Flat Products</i>	321.144
<i>Steel Line Pipe</i>	19.719
<i>Steel Nails</i>	24.652
<i>Steel Pipe</i>	90.033
<i>Steel Products</i>	311.226
<i>Steel Standard, Line, and Pressure Pipe</i>	72.810
<i>Steel Wire Rod</i>	4.88
Total level of nullification or impairment	3,579.128

8 CONCLUSION

8.1. For the reasons set out above, we determine that the level of nullification or impairment of benefits accruing to China as a result of the WTO-inconsistent methodologies used by the United States in anti-dumping proceedings concerning products imported from China is 3,579.128 million USD per annum. Therefore, in accordance with Article 22.4 of the DSU, China may request

³⁶⁸ For a similar approach, see Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.114-3.119.

authorization from the DSB to suspend concessions or other obligations at a level not exceeding 3,579.128 million USD per annum.
