

Methods for Conducting Country-Specific Plastic Pollution Policy Assessments: A How-To Guide

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INTRODUCTION

Governments worldwide are developing and enacting public policies intended to address plastic production, consumption, disposal, and entry into aquatic and marine environments as a part of the fight against the proliferation of oceanic plastic pollution. In 2020, we released a report, *20 Years of Government Responses to the Global Plastic Pollution Problem*, summarizing the results of an analysis of the global plastics policy landscape, based on a newly constructed database of policy documents (i.e., international agreements, national and subnational laws and regulations) on international, national, and subnational levels. This analysis was an initial attempt to synthesize the global landscape of plastics policy approaches and was broad in scope. The accompanying database the *Plastics Policy Inventory*,¹ with an acknowledged English language bias, is far more comprehensive at international and national levels than at the subnational level.

Building upon this assessment of a global database of plastic pollution policy documents, a research team from Duke Kunshan University, in China, adapted the methods used in the 2020 report to conduct a deeper dive of plastics policy documents at the national and subnational level in China (publication forthcoming).

This brief aims to summarize the methods used in both the Global and China assessments and is written for researchers at any level to replicate these methods and tailor them for their country or countries of interest. This brief is organized into three principal sections based on the methods originally developed for the global assessment in the original report (referred to here as the “Global report”). They are: 1) constructing a policy inventory with national and subnational policy documents; 2) assessing the inventory using qualitative analysis software, NVivo; and 3) constructing an accompanying inventory of the scientific literature about the effectiveness of the policies. These sections are relatively independent, so researchers can select which or all might be most applicable in a given context.

Each section includes details on individual methods from the Global report and how those methods were adapted for the report on plastics policies in China (referred to here as the “China report”). Each section also follows with lessons learned and considerations for the user aiming to conduct country-specific plastics policy research in different regions of the world. The programs used in this report are free and open access except for NVivo. For users who cannot access NVivo, refer to [this link](#) for a list of open source and free qualitative data analysis programs. Additional detail on the methods can be found in the appendices of the Global report² and the forthcoming publication about plastic policy approaches in China.

MODULE ONE: CONSTRUCT A NATIONAL AND NONCOMPREHENSIVE PLASTICS POLICY INVENTORY

Step One: Identify Relevant Legal Databases

For Reference: [Methods Used to Identify Relevant Legal Databases for the Global Report](#)

A global inventory of public policy documents describing government responses to the marine plastic pollution problem was constructed through several search phases, which included: 1) global policy databases as primary sources of data, 2) scientific literature and an ad hoc review of grey literature as secondary sources, and 3) media resources. As a cross-check, a number of experts were consulted to identify any gaps in the first iteration of the inventory. We will focus on the first phase here. For much more detailed information on the other phases of the inventory development methods, please refer to page 139 of the complementary *20 Years of Government Responses to the Global Plastic Pollution Problem* report, published in 2020.

1. <https://nicholasinstitute.duke.edu/plastics-policy-inventory>.

2. *20 Years of Government Responses to the Global Plastic Pollution Problem* – <https://nicholasinstitute.duke.edu/publications/20-years-government-responses-global-plastic-pollution-problem>.

In the first phase, a team of four researchers searched the following international databases containing public policy documents: ECOLEX, InforMEA, and the UN Ocean Commitments site. These three were selected because they provide users with comprehensive and up-to-date access to primary sources (i.e., policy documents themselves) on the international, regional, and national level, and to a lesser extent on the subnational level. A consistent set of key words was used for the searches (the databases do not support searches using Boolean combinations of terms), as shown below:

Cigarette waste - Marine debris - Marine litter - Microplastic - Microfiber - Nurdle* - Nylon - Plastic - Polyethylene - Polymethyl methacrylate - Polypropylene - Polystyrene - Polyvinyl chloride - Shopping bag - Styrofoam - Synthetic disposable - Tire/Tyre - Beach clean-up - Coast* clean-up - River clean-up, - Recyclate - Polymer - Bioplastic - Oxodegradable

For Reference: Methods Used to Identify Relevant Legal Databases for the China Report

Researchers developed a plastic policy inventory using PKULaw, one of the most comprehensive, professional, and authoritative law and policy databases in China maintained by the Legal Information Center of Peking University. This database contains up-to-date national, provincial, and municipal laws in China. Based on expert consultations, the researchers felt confident that all relevant laws are in this database and would not need to be cross-checked with other databases. A consistent set of key words was used for the searches as shown below:

English (terms only used in the China Report are in bold)	Chinese (terms only used in the China Report are in blue)
Cigarette waste, Marine debris, Marine litter, Microplastic, Microfiber, Nurdle, Nylon, Plastic, Polyethylene, Polymethyl methacrylate, Polypropylene, Polystyrene, Polyvinyl chloride, Shopping bag, Styrofoam, Synthetic disposable, Tire, Tyre, Beach clean-up, Coast* clean-up, River clean-up, Recyclate, Polymer, Bioplastic, Oxodegradable, Plasticizer, Polyethylene terephthalate, Polyester, Fiber	烟蒂, 海洋废弃物, 海洋垃圾, 微塑料, 微纤维, 树脂颗粒, 尼龙, 塑料, 聚乙烯, 聚甲基丙烯酸甲酯, 聚丙烯, 聚苯乙烯, 聚氯乙烯, 购物袋, 泡沫塑料, 一次性用品, 轮胎, 车胎, 净滩, 河流清理, 可回收, 聚合物, 生物塑料, 可降解, 增塑剂, 聚对苯二甲酸乙酯, 涤纶, 纤维

In order to assure the most comprehensive results without any omission, researchers searched all the keywords independently in the PKULAW database, rather than searched by two or more keywords at the same time (e.g. Plastic AND Tire).

Considerations for your assessment:

- You can utilize the aforementioned global legal databases for your policy document search. The databases offer a brief description for each policy, so even if you do not speak the language that the policy document is in, you can use these descriptions to determine if the policy document is relevant for your search. You can apply filters to all the global databases to include only policy documents in your country or countries of interest. It should be noted that there is a chance that they will not have every relevant policy document as they are not all automatically updated after a law is passed, and they are less likely to have subnational policies. The U.S. Library of Congress offers a guide to legal resources for each country. This may be a good place to start if you are unsure if your country of interest has a legal database. For example, here is [India's](#).
- Consider using search terms that will be relevant for finding plastics policy documents in your country of interest. This may mean adding new keywords or removing keywords from the lists in the sections that are not relevant. If you are unsure, test out some keywords in the search databases you have identified to determine if they are relevant and useful. You will benefit from speaking to plastic pollution experts and research librarians in your country or countries of interest.

Step Two: Collect and Clean the Data

For Reference: Methods Used to Collect and Clean the Data for the Global Report

Each policy document found in the search of databases was briefly scanned unless the title or short description provided by the online database clearly indicated that the document was not relevant (e.g., a policy for sterilizing plastic gloves for surgery). Any policy document that seemed relevant to addressing plastic pollution was entered into one list (stored in a Microsoft Excel sheet) that was accessible to all the researchers. Each of the remaining documents was given a unique identification number and retained for further screening. After the researchers completed their database searches and entries into the excel sheet, duplicates were removed.

For Reference: Methods Used to Collect and Clean the Data for the China Report

Policies of mainland China were the only sources be collected and analyzed, since there are huge differences between Hong Kong, Macao, Taiwan, and Mainland China in terms of their historical development process, current administrative system and policy formulation process.

Each policy document found in the search of databases was briefly scanned unless the title or short description provided by the online database clearly indicated that the document was not relevant (e.g., a policy of industry product standard on “polyethylene plastic composite pipe fittings for water supply”). Any policy document that seemed relevant to addressing plastic pollution was entered into one list (stored in a Microsoft Excel sheet) that was accessible to all the researchers. Each of the remaining documents was given a unique identification number and retained for further screening. After the researchers completed their database searches and entries into the excel sheet, duplicates were removed.

Considerations for your assessment:

- Saving each policy document with a unique ID as a .PDF file and logging it into an Excel database is very useful for internal database organization. The research team working on the Global Report used the following naming structure to save each policy document “Unique ID_Year_I/N/S*_First_three_words of policy”
 - * I/N/S stands for international, national, or subnational
- If you are unsure that your policy document is relevant, keep it in the database for now. The next section describes additional screening processes.

Step Three: Screen the Data

For Reference: Methods Used to Screen the Data for the Global Report

In this screening process, one researcher reviewed the relevant text of each document (i.e., where the keywords were found), and in some cases reviewed the whole document to be sure, in order to organize the policy documents into one of three categories in the inventory, as defined below:

- (1) Plastic Pollution Policies [Tier 1]: Policy documents that include at least one instrument where the intent of the government is clearly the reduction of plastic leakage into the environment at any point in the plastic life cycle. Only these documents were included in the analysis in the next section;
- (2) Generally Applicable Policies [Tier 2]: Policy documents that may have an impact on the quantity or quality of plastic leakage into the environment, but where the intent of these policies as it relates to plastic leakage cannot be inferred from the document itself (e.g., solid waste management policies that do not explicitly refer to plastics); and

- (3) Excluded Policies [Tier 3]: Policy documents where the specific intent and direct impact on plastic leakage at any stage in the life cycle is unclear, ambiguous, or absent, but plastics are peripherally associated with the policy itself. Tier 3 documents are also those that were originally saved because they were assumed to be policy documents, but upon further examination were actually government reports. These were removed from the inventory during the screening process.

For Reference: Methods Used to Screen and Organize the Data for the China Report

For every policy document that came out of the PKULaw database, the researchers would briefly scan it and ensure whether it should be included in the inventory of public policy documents describing government responses to the plastic pollution problem. The researchers had the following four inclusion criteria for their policy inventory:

- (1) Jurisdiction: In mainland China, policies are usually issued by the central government first, and then provincial administrative regions, including provinces, municipalities directly under the central government, and autonomous regions, will follow up—and then cities and counties. There are a large number of policies at city, county level and below, but have limited significance to the analysis of the overall trend. Hence, only the central and provincial documents are selected, representing national and subnational policies respectively.
- (2) Effective date of policies: Since the date issued and effective date of the same policies often varies, and to involve policies as comprehensively as possible, policies came into force after January 1, 2000, and issued before June 30, 2021, as well as those were still not “invalid” (including “effective” and “revised but not expired”) until July 31, 2021, were selected.
- (3) Content: According to some linguistic features of Chinese policies, some documents were screened out. Examples of such policies with rationale from why they were not included in the analysis are listed below:
 - (a) Example A. Policies whose titles include “patriotic hygiene campaign/regulations,” “green life,” “catering quality and safety improvement action” were screened out for the following reasons: (1) Plastic-related contents in these policies are relatively simple and general, such as “promote the replacement and limitation of plastic products, speed up restrictions and bans on nondegradable plastic bags and disposable tableware,” and “promote the recycling of agricultural mulch,” which were illustrated more specifically in other regulations; (2) They are mainly formulated for the general “masses,” not citizens, companies, or other legal subjects; (3) The purpose is usually to encourage and advocate virtues that are more eco-friendly, not coercive regulations.
 - (b) Example B. If a follow-up policy had the same jurisdiction and highly consistent contents with the original policy, the follow-up policy would be screened out. For instance, for the policy Announcement No. 61 in the year 2020 of the Ministry of Commerce – Announcement on the Issuance of Reporting Measures for the Use and Recycling of Disposable Plastic Products in the Commercial Field (Trial) and its closely follow-up policy Notice of the General Office of the Ministry of Commerce on Reporting Measures for the Use and Recycling of Disposable Plastic Products, the latter was rejected.
 - (c) Example C. Periodical documents that lasted for a few months, with “Special Action” in the title, or specific statement in the content such as “this is a short-term intensive special action” (mostly rectification and investigation actions) for several months, would be screened out, since they have expired as of July 31, 2021.

- (4) Amendment: A policy may contain more than one amendment in our analysis. For a policy that has a lot of amendments, the project team selected all editions that have substantially modified the plastics-related content of the previous edition. In other words, if an amendment only revised publishing or executive agencies according to their name change, very few words or phrases to make it more forceful or tougher, or contents related to other fields except plastics, it would not be included in the inventory.
- (a) Example A. If an amendment of a policy revised little based on the previous version, but the previous version had an effective date prior to 2000, the first amendment after 2000 was included
 - (b) Example B. If there was no plastic-related content in the previous amendment, the version with plastic-related content would be included.

Considerations for your assessment:

- It will be useful to have one reviewer screening all of the policy documents in your inventory and developing a categorization process for them. Both teams ended up using a three-tier system that differed slightly, but their categorization worked well for them and the inventory and analysis they had developed.

MODULE TWO: ANALYZE THE CONTENT OF THE POLICY DOCUMENTS IN THE INVENTORY

Step One: Develop a Plastics Policy Codebook to Guide the Analysis

For Reference: [Methods Used to develop a Codebook for the Global Report](#)

Each of the Tier 1 plastics policy documents in the Inventory that was written in or translated to English was coded using NVivo qualitative analysis software to identify and characterize the policy instrument (the design of the policy response) and the enforcement mechanisms defined to help deliver these instruments, drawing upon the conceptual framework described previously.

To guide the analysis a codebook (see Appendix 1) was developed to classify:

- (1) The policy instruments comprising the government's response, considered as multidimensional variables, in terms of:
 - (c) The type of instrument*
 - (d) The type of plastic pollutants targeted by the instrument, and
 - (e) The stage of the life cycle of the plastic targeted; and
- (1) Any associated enforcement mechanisms defined to help deliver the instruments.

*The types of policy instruments were defined as one of three mutually exclusive categories:

- (1) Regulatory instruments – measures taken by governmental units to influence people by means of formulated rules and directives which mandate receivers act in accordance with what is order in these rules or directives which can be affirmative (i.e., requiring an action) or prohibitive (i.e., prohibiting an action);

- (2) Economic instruments – characterized as involving the handing out or taking away of material resources while the addressees are not obligated to take the measures involved (can be an incentive, such as a subsidy, or a disincentive, such as a tax); and
- (3) Information instruments – attempts at influencing people through the transfer of knowledge, the communication of reasoned argument and persuasion

For Reference: Methods Used to Develop a Codebook for the China Report

Each plastics policy document in the Inventory was coded using NVivo qualitative analysis software to identify and characterize the policy instrument (the design of the policy response), drawing upon the conceptual framework described previously.

Researchers added several additional variables for classification to the codebook used in the analysis for the Global Report, with the additional variables briefly described below and also shown in the appendix:

Publishing Agency: In China, a policy document may be published by more than one agency, which can reflect the diversity of instruments it utilized. This category will help distinguish which government agencies are responsible for policy implementation and track how it changes over time.

Compared with attributes' one-to-one correspondence with policies, one policy could be coded into more than one node when coding. Once related context was mentioned in the policy, it would be coded into corresponding nodes.

Identify Metadata for Each Policy Document

The relevant text of each document (i.e., where the keywords were found) was reviewed—where unclear the whole document would be reviewed—in order to distribute five categories, coding as “attributes,” as defined below, into each policy document:

- (1) Jurisdiction: Policy documents published by central government are “national” policies, whereas those published by provincial government are “subnational” policies.
- (2) Policy efficacy: Policy documents with concrete punitive measures or time goals are defined as “mandatory law or regulation”, whereas others are defined as “advocacy suggestion.”
- (3) Correlation with plastics: Policy documents that mention “plastic” or “tire” or “agricultural mulch” in the text are defined as they have a “direct correlation” with plastics, otherwise are defined as they have a “indirect correlation” with plastics.
- (4) Effective date: The year of the policy’s effective date, which varies from 2000 to 2021.
- (5) Main purpose of policy: This can also be considered the goal of the policy, as many policies in China have specific motivating factors. It is usually mentioned at the beginning of the policy with a specific description such as “This law is developed for the purposes of ...”. Five major goals and 12 subpurposes were identified (Appendix 1).

As an attribute, it keeps one-to-one correspondence with each policy. In other words, one policy could only be classified into one category for each attribute. For instance, the policy Administrative Measures for the Paid Use of Plastic Bags at Commodity Retailing Places, came into force in 2008, was attributed to “national”, “mandatory law or regulation”, and owned a “direct correlation” with plastics. Besides, its purpose was classified into “Plastics management and treatment” for the major goal and “Ban or limit plastics (mainly bags and macroplastics)” for the subpurpose.

Since each policy document could only be classified into one category for an attribute, a cluster of key policy could be screened out using “jurisdiction,” “policy efficacy,” and “correlation with plastics.” For these three

attributes, “national,” “mandatory law or regulation,” and “direct correlation” has a higher priority than “subnational,” “advocacy suggestion,” and “indirect correlation,” respectively.

Policy documents that meet all the three priorities are key policies which are the most important and influential within this field during 2000–2021, with a total number of 61. As guiding and core, they were placed more emphasis on during the analysis. However, all the other 170 policies were also coded as detailed as key policies, to help build a complete picture of China’s policy trends.

Considerations for your assessment:

- Codebooks are like languages that your research team will develop to interpret and assess policy design. To make sure that you and your coder understand and are applying the codes to the policies in the same way, conduct several inter-rater reliability (IRR) tests. The results of an IRR include the measure of coding agreement, and a Kappa score. A Kappa score adjusts the coding agreement by taking into account the likelihood that there is coder agreement by chance. If your Kappa score is above 0.4 consistently, you are in a good place to begin coding.
- Depending on your country context, you may need to add new codes or adjust your definition of the codes. This is fine as long as you document the changes you made and remain consistent.
- To learn more about coding in NVivo and qualitative analysis in general, refer to this [YouTube channel](#), Improving Team Research with NVivo.
- If you have any questions about coding, do not hesitate to reach out to the authors of this report. It is better to ask questions when learning new software programs.

MODULE THREE: REVIEW THE LITERATURE FOR MEASURES OF THE EFFECTIVENESS OF THE POLICY INSTRUMENTS

Step One: Identify Literature Databases and Develop Search Strings for a Literature Review of the Effectiveness of Policy Instruments

For Reference: [Methods Used in the Literature Review for the Global Report](#)

Note: for a much more detailed information on the literature review methods, please refer to page 140 of the complementary [20 Years of Government Responses to the Global Plastic Pollution Problem](#) report.

A library of scientific literature about public policies aiming to address marine plastic pollution was compiled, from searches of the following interdisciplinary or legal research databases: Web of Science, Google Scholar, and Hein Online (legal literature). Based on initial tests, the search string of terms related to plastic pollution was divided into three smaller strings: 1) most general, 2) less general, and 3) “poly” words, all in combination with the same terms for public policy and governance. These three strings were specified to target the most relevant articles among a high number of returns, allowing the most relevant articles to be more easily identified among the returns. For example, the string with “poly” words for plastic pollutants returned a significant number of articles related to the chemistry of plastics, which crowded out articles relating to plastic pollution. The three strings used are as follows:

- (1) Most general: (“Marine debris” OR “Marine litter” OR Microplastic OR Microfiber OR Plastic NOT Surge* NOT elast*) AND (Policy OR Govern* OR Institution OR Law OR Regulat* OR Legal OR Intervention OR Infrastructure OR Coastal city OR Mega-city OR Municip* OR Subsidy OR subsidize OR Subsidies OR Ban OR bans OR banned OR Tax OR taxes OR taxed OR Fee OR Fees);

- (2) Less general: (Nylon OR “Shopping bag” OR Styrofoam OR “Synthetic disposable” OR Tire OR Tyre OR “Cigarette waste” OR “Beach clean-up” OR “Coast* clean-up” OR “River clean-up”) AND (Policy OR Govern* OR Institution OR Law OR Regulat* OR Legal OR Intervention OR Infrastructure OR Coastal city OR Mega-city OR Municip* OR Subsidy OR subsidize OR Subsidies OR Ban OR bans OR banned OR Tax OR taxes OR taxed OR Fee OR Fees); and
- (3) “Poly” words: (Polyethylene OR Polymethyl methacrylate OR Polypropylene OR Polystyrene OR Polyvinyl chloride OR Recyclate OR Polymer OR Bioplastic OR Oxodegradable) AND (Policy OR Govern* OR Institution OR Law OR Regulat* OR Legal OR Intervention OR Infrastructure OR Coastal city OR Mega-city OR Municip* OR Subsidy OR subsidize OR Subsidies OR Ban OR bans OR banned OR Tax OR taxes OR taxed OR Fee OR Fees).

Each of the above search terms was considered exhausted either when a) 20% of the search results were reviewed or b) more than 10 sequential pages of search results yielded no relevant literature, whichever came first. For more information on how to conduct a meta-review, refer to the Haddaway, et al. (2015) paper, [Making literature reviews more reliable through application of lessons from systematic reviews](#).

The results from the screening process were stored in a Zotero catalog and tagged based on the type of study, either “review,” “single study,” or “law review,” and the level of intervention, as either “international,” “national,” or “subnational.” The results were organized into four categories of a library on plastic pollution policy, as follows:

- (1) Plastics policy effectiveness literature: 136 articles about public policies introduced with the clear intention of reducing plastic pollution (16 of these were grey literature papers returned from Google Scholar);
- (2) Generally applicable policy: 67 articles about public policies observed or expected to have an impact on reducing plastic leakage, but were not introduced with the explicit intention of doing so (e.g., solid waste management policies);
- (3) Plastic policy recommendations: 41 articles that primarily give proposals of how to improve current public policy or introduce new policies; and
- (4) Potentially relevant studies: 71 articles that provide information that could be instructive for the development of public policy recommendations, but do not directly address effectiveness of policies (e.g., those studies that addressed public perception of policies to reduce plastic pollution, conducted a life cycle analysis, addressed economic impacts of marine pollution, or addressed norm diffusion in policy formation).

In addition to the scientific literature, an ad hoc review of key studies in the grey literature was conducted by two researchers to identify policy documents for potential inclusion in the inventory. Grey literature and white reports published after 1999 were identified based on searches of websites for global organizations conducting research on the marine plastic pollution problem.

China Report

China has a robust national research and academic literature database, known as CNKI. The researchers relied mostly on this database to pull relevant literature on policy effectiveness. Google Scholar and other literature databases can also be used on the literature. The China Report did not rely heavily on a literature review for their analysis because they were able to identify policy trends and gaps from the NVivo analysis.

Considerations for your assessment:

- You can tailor the search strings above to fit your research context. For example, here is a search string that project team used to find research on plastic policy in the Maldives and used in Google Scholar:

“Maldives” AND “Plastic” AND (Policy OR Govern* OR Institution OR Law OR Regulat* OR Legal OR Intervention OR Infrastructure OR Coastal city OR Mega-city OR Municip* OR Subsidy OR subsidize OR Subsidies OR Ban OR bans OR Tax* OR taxes OR Fee*)

- There are many literature search engines beyond Google Scholar that may have more representative scientific literature about your country or countries of interest. You will benefit from working with a research librarian to identify those databases and adapt your search strings to your country context.

CONCLUSION

Completing any or all of the above modules can support efforts to describe and assess the plastics policy landscape in a given country or context. Carrying out the three modules can facilitate identification of gaps in local areas within the country or plastic types targeted through national policy, or assessment of trends in the development and evolution of plastics policy within your country. In particular, the review of the literature can show how experts have come to understand the effectiveness of policy approaches within the country, and whether there is consensus concerning recommendations for future policy development. Refer to the Global report or the forthcoming China report for guidance on what kinds of assessments may be useful to conduct with this information.

APPENDIX 1 – NVIVO CODEBOOK

Table 1. Codebook for Global report and China report, with notes on when and how those codes were interpreted differently. Note each policy instrument within a policy document is coded with at least one code within each numbered variable (e.g., at least one plastic type and at least one stage of the life cycle and at least one policy instrument type and at least one enforcement mechanism description).

Coding Variables in Global and China Policy Analysis

Variable	Code	Sub code (when relevant)	In Global Report?	In China Report?	Notes
			YES	NO	
1. Type of plastic pollutants targeted	Macroplastics from land-based activities, excluding plastic bags				
	Plastic bags				
	Microplastics from land-based activities, excluding tire abrasion				
	Microplastics from tire abrasion				Since “tire” is usually not related to “microplastics” in current Chinese policies, for this node in China policy analysis, it basically contains policies aiming at “tire” itself.
	Plastic pollutants from maritime activities				
	All plastic pollution				This code is for the most general or unspecified types of plastics. For example, a policy instrument implementing an educational program about plastic pollution will use this code.
	Agricultural Mulch				
	Pesticide Packaging				

Variable	Code	Sub code (when relevant)	In Global Report?	In China Report?	Notes
			YES	NO	
2. Stage of the life cycle of the plastic targeted	Production				
	Import				
	Selling				
	Use				
	Disposal				
	Collection				For China, this code also includes waste classification, which is a very important part of contemporary solid waste management.
	Recycling				
	Reuse				In some cases, the term reuse means recycle. It can be difficult to distinguish when the instrument is referring to reuse without recycling.
	All				This code is for the most general or unspecified types of plastics. For example, a policy instrument implementing an educational program about plastic pollution will use this code.

Variable	Code	Sub code (when relevant)	In Global Report?	In China Report?	Notes
			YES	NO	
3. Type of Policy Instrument	Regulatory Affirmative	Develop new, or improve existing process or product	YES	YES	
		Plan/commitment	YES	NO	This node is not included in China report, as a new node "Policy Efficacy" has been added that is inclusive of this policy instrument.
		Post-leakage plastic capture	YES	YES	
		Responsible handling of plastic	YES	YES	
		Nongovernment investment (Encouragement)	NO	YES	This refers to policy instruments that encourage non-governmental entities to reduce their plastic production, consumption, or disposal without explicitly mandating it.
		Ban plastic	YES	YES	
Regulatory - Prohibitive	Regulatory - Prohibitive	Irresponsible handling of plastic	YES	YES	
		Limit Plastic	YES	YES	For the Global report, limit refers to setting quotas for plastic and is rarely used. For the China report, limit refers to vague mandates calling for a reduction in plastics and is used quite frequently.

Variable	Code	Sub code (when relevant)	In Global Report?	In China Report?	Notes
			YES	NO	
3. Type of Policy Instrument	Economic Incentive	Cash for return			The use of token systems is being piloted in China. Users can return plastics and have money added to a token which can then be used as money. This code is often used for token systems in China, but in the Global Report is used for Extended Producer Responsibility and other schemes that reimburse consumers that return plastic items (usually PET bottles) for recycling.
		Subsidy			
		Tax break			
		General			There are many policies in China that indicate they will provide financial support to entities focusing on plastic reductions, but often do not provide more detail than that. This code is for those instances.
	Economic Disincentive	Fee, tax, levy, or duty			
	Information	Education or outreach			
		Labels or placards			
Research, data collection, data reporting or record keeping					
4. Enforcement Mechanism	Enforcement Mechanism Present			This node does not fit Chinese policies, for they almost always have enforcement mechanism.	
	Enforcement Mechanism Absent				

Coding Variables Added in China Policy Analysis

Variable	Code	Sub code (when relevant)	Notes
5. Main purpose of policy (coded as an "attribute" in NVivo)	Comprehensive Plan or Regulation	Deepening Reform and Opening-up (multiple aspects)	
		Development of Ecological Civilization (specific)	
	Specific Ecosystem Conservation	Soil Pollution Treatment and Agriculture Development (Rural Revitalization)	
		Waters Protection (ocean, river, lake, and wetland)	
	Plastics Management and Treatment	Ban or Limit Plastics (mainly bags and macroplastics)	
		Domestic Waste Treatment	
		Source Collection and Recycling	
	Economic Transformation and Development	Circular Economy	
		Energy Saving and Emission Reduction	
		Green Transformation	
		Industrial or Investment Structure Adjustment	
	Body Health		
6. Policy Efficacy (coded as an "attribute" in NVivo)	Advocacy Suggestion		
	Mandatory Law or Regulation		
7. Correlation with Plastics (coded as an "attribute" in NVivo)	Direct correlation		
	Indirect correlation		