



## The Interaction between Industries and Executive Agencies (The Department of Environment and Administration of Economic and Finance) to Reduce Pollution: A Qualitative Study

Mohsen Pakdaman<sup>1</sup>, Samaneh Khademi<sup>2\*</sup>, Mohammad Taghi Ghaneian<sup>2</sup>, Hosien Zareian<sup>3</sup>,  
Mohammad Hassan Ehrampoush<sup>2</sup>, Mohamadali Morovati Shrifabadi<sup>4</sup>

<sup>1</sup> Health Policy and Management Research Center, Department of Health Care Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

<sup>2</sup> Environmental Science and Technology Research Center, Department of Environmental Health Engineering, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

<sup>3</sup> Administration of Economic and Finance, Yazd, Iran.

<sup>4</sup> Department of Health Education and Promotion, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

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#### \*Corresponding Author:

Samaneh Khademi

Email:

Khademis248@gmail.com

Tel:

+989176791973

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### ABSTRACT

**Introduction:** Nowadays, the appropriate selection of environmental instruments is considered a political priority in most countries. Given that one of the most important environmental tools in recent years to counteract industrial pollution has been levying green tax on polluting industries, the present study aims to identify interactive factors affecting the enforcement of green taxes between executive agencies [Department of Environment and Administration of Economic and Finance] and industries to reduce pollution.

**Materials and Methods:** In this qualitative study, 13 participants from the DOE, MEFA and Deputy of Industries' Affairs of Yazd were selected by purposive and snowball sampling. The data were collected through semi-structured interviews and then analyzed in the MAXQDA10 software by content analysis method.

**Results:** From our data analysis, two main categories executive organizations and industries were drawn, which included 8 sub-categories tax justice, tax culture development, tax determination and tax collection, weak tax systems, tax laws, tax penalties, tax incentives and adoption of an environmental framework by the industry.

**Conclusion:** Reforming the environmental laws, approaches and policies, emphasizing education to develop the culture of tax payment, avoiding unilateralism in enforcing environmental policies and enhancing incentive policies seem essential.

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### Introduction

Today, the environment and the sustainability of human activities is a priority of most countries<sup>1</sup>. Therefore, the quality of the environment, as an asset, must reflect the difference in the sociocultural values of different communities, especially in terms of environmental health<sup>1</sup>.

However, this issue is underestimated in some developing countries because of different evaluation of the environment<sup>1</sup>. Considering the increasing growth of the laws, the appropriate selection of environmental instruments is considered a top priority for politicians<sup>1</sup>. The most commonly used environmental tools include: emissions tax, tradable

emissions allowance, technology mandates, and subsidies for pollution abatement<sup>2</sup>. With regards to the economists' focus on the criteria for competitive assessment and productivity, as well as the difficulty of evaluating all-round effects, it is difficult to choose the appropriate political instrument and weight it (2A basic tenet in elementary textbooks is the "Pigouvian" principle that pollution should be priced at marginal external cost<sup>2</sup>. These taxes, which are the basis of effective and executive pollution control, have been effective in reducing emissions over the last few decades<sup>3</sup>. According to politicians, the tax system is a powerful device for changing behavior, so that without government intervention, there will be no incentive to compensate for the damage to the environment<sup>3</sup>. Therefore, this principle usually indicates that the emissions taxes are superior to alternative instruments<sup>2</sup>. While Pigouvian perspective is still drawing attention, recent research shows that for some reason, such as the problem with access to information, organizational constraints, technology spillovers, and fiscal interactions, the use of this instrument is not consistently reliable, and a more complex set of considerations is required that sometimes justify using instruments other than emissions taxes<sup>2</sup>. Although it is strongly recommended by economists to levy such taxes, its success will be politically difficult because of the opposition of the people and the industry<sup>4</sup>. The tax on carbon in France (2010), the road tax in Edinburgh (2005), the tax on fossil fuels in Switzerland (2000), the United Kingdom's fuel tax (2000), and the US energy tax (1993) are some of the unsuccessful examples<sup>4</sup>. Kallbekken Steffen, in a research to identify effective factors on support of environmental policies (2011), found that supporting environmental tax was optimally associated with prediction of its consequences on people<sup>4</sup>. Calvi Wan investigated the political factors that have an impact on the level of public support of environmental policies, and found the political trust of the people in the government, the fair method and fair distribution of costs the people should pay, the type of authorities' dependence on political parties, the process of participation in the implementation of

policies and political priorities of countries as influential factors in the development of policies<sup>5</sup>. In one study, Roberta Arbolino, using data from 15 European countries on the Environmental Performance Index (EPI), concluded that economic factors play an important role in the development and dissemination of environmental policies<sup>1</sup>. Although recent resources provide useful information for supporting environmental policies, no comprehensive study of political determinants has yet been undertaken to increase the acceptability and popular support for environmental policy<sup>5</sup>. Given that studies in Iran confirm the necessity of levying such taxes on polluting activities as well as the efficiency and effectiveness of this policy and the ineffectiveness of current policies, politicians' inclination to implement this policy has increased<sup>6-12</sup>. Therefore, considering that there is still no comprehensive study on the factors affecting the implementation of this environmental policy in Iran, it is essential for policymakers to understand what is central to support of political tools for policymakers<sup>5</sup>. Considering the importance of interaction between industries and executive and regulatory agencies in implementing environmental policies, the main objective of the present study is to identify the factors affecting the interaction between industries and executive agencies in implementing green taxes to reduce pollution in Yazd.

### Materials and Methods

The present study is a qualitative study using content analysis. The purpose of content analysis is the subjective interpretation of textual data through systematic classification processes, encoding and schematization, and designing known patterns<sup>13</sup>. This method allows researchers to interpret the originality and trustworthiness of the data subjectively but scientifically. The objectivity of the results is realized by a systematic encoding process. In fact, this analysis transcends the words or the objective content of the texts, and explicitly reveals the themes or patterns that are explicit or implicit<sup>14</sup>. In this research, the interviewees were five experts on environment, four experts from the Tax Administration of Yazd and four experts from

the Deputy of Industries' Affairs of Yazd. Samples were selected by purposive and snowball sampling. The criterion for determining the number of samples in this study was achievement of theoretical data saturation. Theoretical saturation occurs when no new information or perspective is obtained from the interviewees<sup>15</sup>. First, potential participants of the study were included in the study after they provided oral and then written consent to participate in the study, the procedure and objectives of the study were explained to them, and the informed consent form to record the interview was completed by them. Ethical standards including anonymity, confidentiality of information, being allowed to withdraw from the study whenever they wished and obtaining permission from the School of Public Health of Yazd Shahid Sadoughi University of Medical Sciences were also followed. The location and time of the interviews as well as other processes related to recording their content were determined at the interviewee's convenience. Data were collected through semi-structured interviews. In general, interview questions were related to on how the green tax affects pollution reduction, tax justice, the development of tax culture, the types of tax incentives and penalties for polluting industries, the status of current laws on industrial pollution, and the assessment of the weaknesses and problems of executive agencies in implementing environmental policies and polluting industries. Interviews were conducted individually after scheduling an earlier appointment. The location of the interview was a calm place at the interviewee's convenience and the interview was recorded by an MP3 player. The duration of interviews varied from 40 to 120 minutes. Data analysis was performed using the MAXQDA10 software. The MAXQDA10 software is used to qualitatively analyze data in social sciences and humanities. This software is very useful for students, researchers, professors and research institutes that seek to apply qualitative research methods, such as grounded theory and content analysis. Data were analyzed using content analysis method according to the proposed steps of Graneheim and Lundman.

Based on this method, the following steps were taken: transcribing the interview audio word-by-word immediately after each interview, reading the entire transcript several times to obtain a general understanding of its content, dividing the text into semantic units, drawing a summary of semantic units and coding, classifying primary codes into subcategories and categories based on their similarities and differences, and finally drawing the themes as the expression of latent content in the data<sup>16</sup>. The data from each semi-structured interview was the guide for the next interview, and the sampling continued until data saturation was achieved, which was realized after interviewing a total of 13 individuals. The inclusion criteria were having at least bachelor's degree, having sufficient expertise and experience to contribute to the study subject, having appropriate verbal skills to clearly express facts and experiences, and the intrinsic interest in and experience with expressing rich-information experiences that would provide a solid picture of the phenomenon under study. In order to determine the accuracy and reliability of the data, the researcher established long-term relationships with study settings, which helped gain the participants' trust and appropriately understand the environment. Maximum variation sampling, appropriate strategy to select samples, assuring participants that the information would be maintained confidential and that they could withdraw from the study whenever they wished were also followed to increase the credibility of the study. To ensure the credibility of the data, after analyzing and coding the interview transcripts by the researcher, the transcripts of some interviews were provided to some of the experts and knowledgeable colleagues to ensure the credibility of data by comparing their coding with the researcher's coding. In fact, the member check was used in such a way that the transcribed and coded content and the related analysis were provided to other members of the research team to achieve consistent coding. In order to provide data transferability, interview questions, codes, categories, and generally, research findings were provided to other knowledgeable individuals and

respective professionals by the researcher, and their views on the appropriateness of the findings were reviewed. Although the use of purposive sampling method acts as an umbrella, and in terms of the suitability of the participants, the purpose and access to the appropriate information, provides conditions such as random selection in quantitative studies, and thus the transferability of the findings to other cases is achieved. For conformability of data and ensuring the accuracy of drawn codes from the transcripts, the data were verified by participants. To this end, after the interview, data generation and coding, the researcher in person asked the participants about their agreement with his own interpretation of the contents and in this way the participants' evaluation of the transcribed

materials was done, and therefore the participants' agreement and confirmation were achieved.

### Ethical issues

This study was conducted with the approval of Shahid Sadoughi University of Medical Sciences and Health Services, Medical Ethics Committee Code: IR.SSU.SPH.REC.1396.78.

### Results

Participants in this study included 13 people, five experts on environment, four experts from the Tax Administration of Yazd and four experts from the Deputy of Industries' Affairs of Yazd. The participants' demographic information is presented in Table 1.

**Table 1:** Participants' demographic characteristics

The position in the respective organization	Work experience	Gender	Age	Education level	The respective organization
Expert responsible for monitoring	16	Male	40	Master's degree	The Department of Environmen
Head of Department of Labor Affairs	20	Female	47	Master's degree	
Student of environment	1	Male	28	Master's degree	
Assistant Professor, the Environment Department of the University	23	Male	50	PhD	
Associate Professor the Environment Department of the University	20	Male	48	PhD	
Auditor	5	Male	33	Bachelor's degree	Administration of economic and finance
Auditor	7	Male	36	Master's degree	
Auditor	10	Male	40	Master's degree	
Chief auditor	5	Male	32	PhD	
HSE expert	3	Female	30	Master's degree	The Deputy of Industries' Affairs
HSE expert	3	Female	30	Master's degree	
HSE and research and development director	8	Male	34	Master's degree	
Environmental unit secretary	6	Male	32	PhD	

After analyzing the data, 1093 primary codes were drawn to be related to interactive factors between the executive organizations of environmental policies (The Department of Environment and Administration of economic and finance) and polluting industries. By consolidating similar codes, the final number of primary codes decreased to 932. The codes drawn were assigned to eight subcategories according to the number of codes and priority of the focus of the experts. The subcategories consist of tax justice, tax culture

development and tax incentives, tax calculation and collection, tax laws, tax penalties, the adoption of the environmental framework of the industry and the weakness of the tax system, some of the drawn codes in each subcategory are shown in Table 2. Eventually, these subcategories were assigned to two categories and the main theme, namely, the interaction between executive organizations (the Department of Environment and Administration of economic and finance) and industries in reducing pollution, was formed.

**Table 2:** Categories, subcategories and codes explaining effective interactive factors between the executive organizations of environmental policies and polluting industries

Drawn codes	Subcategories	Categories	Theme
Classification of industries and comparing each industry with their own cohort	Tax justice	The executive organizations of environmental policies (the Department of Environment and Administration of economic and finance)	Interaction between the executive organizations (the Department of Environment and Administration of economic and finance) and industries to reduce pollution
The necessity of correction of tax amounts proportionately to the amount of damages			
Implementation of the guidelines based on the type of industry and pollutant in question			
Establishing a competition between green industries to make attempt to benefit from the enforcement of green taxes			
The need to determine the standard pollution coefficient for each industry by the Department of Environment			
The need to pay attention to the effects of plans on stakeholders by the government			
The need to provide documents by the company to calculate the amount of tax levied on the company			
Reducing the cost of collecting tolls by means of the Tax Administration's tools			
The need to create a share for the environment based on the type of industry			
The necessity of equality of the roles of the Department of Organization and the Ministry of Industry and Mines in the possession of industrial stocks			
Reducing pollution by increasing awareness of the effects of green taxes	Tax culture development		
Prioritizing education in the country			
Increasing the sensitivity and awareness of the people is a factor for the precise activity and pursuit of the environment and industry			
The need to hold workshops for industries			
The need to provide services for the people by the government			
The need for initial transparency in the tax debate			
The necessity of people's accountability for the enforcement of government regulations			
Provide a state-of-the-art government service report in the media and virtual networks			
The need for creation of public participation in the enforcement of laws			
Importance of NGO's role in pursuing industrial pollution problems			
Calculating the amount of tax based on regional sensitivity	The methods of tax calculation and collection		
The need to consider the benefits and profits for companies in enforcing laws			
Performing regional research to assess the operational capability of the project			
Calculating the pollution taxes by taking into account the need and position of the community			
Calculating the pollution taxes by taking into account the economic prosperity			
Calculating the pollution taxes according to the amount of damage			
Detecting polluting industry based on industry profitability index			



Drawn codes	Subcategories	Categories	Theme
Checking the company's documents to calculate the amount of tax			
Including the company's environmental costs in calculating the tax amount			
Collecting taxes amount based on industry emissions			
Adjustment of the tax amount to the amount of pollution control capability in the industry			
Calculating taxes based on the extent of industry pollution			
Classification of industries based on the type of environmental pollutant			
Classification of industries according to the polluting region			
The necessity of up-to-date and understandable rules	Tax laws		
The need to strengthen the environmental organization to enforce the rules			
Avoiding policy change for organizations by individuals			
The urgency of the existence of executive agencies in the country			
Codifying tax laws tailored to current conditions			
The necessity of the correctness of the rules to prevent the violation of the industries' rights			
The necessity of strengthening the tax laws and levying heavy penalties for hiding industries' income			
Establishing tax exemptions for the environmental activities of industry in the law			
Exempting industries to pay taxes in case of non-sales			
Dividing tasks between organizations based on their expertise			
The need to increase incentive policies to encourage industries to reduce pollution	Tax incentives		
Providing funding to the industry to carry out environmental initiatives in the industry			
Introducing green industries to special banks for loans			
Granting loans to industries to buy upgraded systems			
Government's cooperation with industry to reduce the pressure on industry			
Reducing the amount of penalties according to the amount of technology change in the industry			
Increasing tax exemptions for development projects			
Funding industry depreciation cost to change technology			
Providing affordable facilities to industries to change technology			
Reducing the industry's self-declaration period if it has a favorable situation			
Determine the amount of penalties according to the amount of pollution in each industry	Tax penalties		
The need for heavier penalties for more polluting industries			
Preventing polluting industries from selling			
Payment of penalties in case of lack of implementing government policies			
Increasing the amount of tax in case of increase in the amount of damage			
Prohibition of import for polluting industries			
Limitations on export opportunities of polluting industries			
Increasing tax if the industry does not reduce pollution			
The requirement of profitable industries to pay for environmental costs in their own industry			
Increasing taxes in case of inadequate industry performance			

Drawn codes	Subcategories	Categories	Theme
The impossibility of determining the real amount of tax without access to bank information	Tax system weakness		
The absence of a tracking system for industries that evade tax.			
Lack of legal cases for tax evading companies			
The absence of a comprehensive system for accessing information			
Existence of significant volumes of exemptions in the country			
Lack of judicial conviction for lack of providing information by companies			
Deferral of functions relative to the rules of the failure to correctly estimate the tax			
Applying a one-dimensional policy to push industries	Adoption of the environmental framework of industry	Industry	
Carrying out appropriate environmental measures in accordance with global regulations			
Allowing HSE experts to enter the industry to justify managers			
Performing pollution analysis by the industry itself for better control and management			
The presence of experts on the environment as executors of law in the industry			
Equipping industries with HSE cores			
Assisting in the deployment of monitoring and environmental management systems in the industry			
The need for transparency in the industry			
Providing information to the government by industries to prevent the loss of the rights of other industries			
The need for clarity at all costs obtained from selling a product to the customer			
Industry cooperation in disclosing the actual amount of profit based on the determination of the tax rate			

According to the table above, the results are presented as follows:

### **1. Executive organizations of environmental policies** (The Department of Environment and Administration of economic and finance)

#### **1.1 Tax Justice**

An analysis of interviews showed that most interviewees agreed to change the amount of taxes based on fair criteria and specific pollution factors and emphasized the calculation of the amount of pollution taxes based on the concentration of pollution and the type of industry. Such taxes should be calculated according to the economic and cultural conditions and industries' entrepreneurship status. In this regard, some participants from the Department of Environment said:

"In my opinion, such a tax cannot be related to the size or production of the factory, because for this case the factories are paying another tax, it is better to focus more on the amount and emissions

of pollutants to the environment and their toxicity and environmental damage." (M.Z).

"The more important mistake regarding industries has been their location. So now that they've been established, they cannot be easily shut down. They have to pay the costs that can partly contribute to the environment of the region, which of course cannot be done irrespective of the economic and production conditions. If you wanna unconventionally get an amount of money from the industry, many times they say it's much better to give up this job than to stick to it." (M.I).

#### **1.2 Tax culture development**

Our data showed that paying attention to education, both from general perspective and from the specific aspect of increasing knowledge and sensitivity in the people and authorities of the country, has a high priority, especially the increase in information and knowledge among the managers of the industry can play an effective role in reaching the optimal enforcement of the

environmental rules and reducing industrial pollution. Creating transparency in the provision of information by executive agencies and providing adequate services to the people and industries by the government in exchange for payment of pollution taxes were other important issues in this regard. In this regard, some participants from the field of environment or industry said:

"The main point is that the environment itself can declare to those (industries) (the environment itself cannot hold these courses), that is to say, industries should be dictated that it is surely necessary to provide training courses for familiarizing with environmental issues for their personnel, from managers to low rank personnel. Many of these are due to lack of knowledge not only in the industry but also in society as a whole." (M.A).

"First, transparency should be created in the tax debate. Because everyone thinks they are receiving money from us forcefully. The government may have little money so that they collect tax from people, but if the Tax Administration tells people the tax we collect we pay for creating green space: for beautification, garbage collection, comfort and well-being. On the other hand (the people) think for example I'm going to pay so much money, instead the government creates a park for me, or on the other hand, the government would provide us with the facilities, and it isn't the case that it isn't clear that where the paid tax is gone." (E.A).

### 1.3 How to calculate and collect taxes

What most scholars have emphasized is to carry out comprehensive research in order to determine the pollutant parameters that are specific to each industry by the Department of Environment to formulate the environmental tax rate for each class of industry. The implementation of this project in a step-by-step manner, taking into account the cultural and economic conditions of each region, should be considered in its implementation. In this regard, some participants from the Department of Environment said:

"It's better to do a full review before calculation of any taxes for industries so that for each specific industry and pollutants, the type and amount of

specific and appropriate tax of the pollutant and the industry will be enforced, which in some way reduces the discrimination between small and large industries and it is regarded as a kind of justice." (M.Z).

"The calculation and determination of taxes should be determined by the length of the factory work, that is, how long the factory has been working and established. You think a factory that can't afford other fines will pay that one percent (pollution tax)?" (H.A).

### 1.4 Tax laws

The data drawn from interviews showed that most executive laws of the country, in addition to being needed to be updated and become appropriate to the current situation, should be codified completely correctly and become fair, simple and understandable, and executive agencies should have more powerful tools and leverage for strengthening infrastructure. In addition, executive agencies should be self-contained and the organization's policy should not be changed by individuals, In this regard, some participants from the industry sector said:

"The same global and international discussions that we are talking about. Let's think globally, act regionally, let's act in our own region with regards to what is existing. If we have one simple, updated rule, not a so complicated rule that the organization itself does not understand how this law has been written written. This is a fair deal in this field, but it's kind of system is different for each industry." (F.SH).

The environment may have done a little bit of work at this time, but you see the environment does not already have a strong leverage, it can only tell the industry to become green industry. In my opinion, when the law is stronger, one can work better. Unfortunately, the Department of Environment is one of those organizations that have the lowest budget and the equipment and facilities and workforce and personnel." (F.SH).

### 1.5 Tax incentives

The review of most discussions in this regard refers to the lack of diversity of pollution control studies in the country, as the one-dimensional



country's enforcement policy is based on punitive policies that not only have not been effective in reducing industrial pollution, but because of the increasing financial burden of the industry. The industry's reciprocal position against the enforcement of the rules and the stubbornness and lack of cooperation of the industry. In this regard, all participants emphasized the necessity of establishing and increasing diversity in the use of incentive and interactive policies in order to increase the cooperation and participation of industries in pollution control. Some participants from the field of environment or the industries said:

"There should be encouraging policies, as they are more fruitful, these policies can be regarded as tax incentives in different ways, for example, if the industry does not have any pollution, a portion of its tax will be forgiven." (M.R).

"It can be said that neither pure incentive policy nor pure punitive policy is the best interactive policy, that is, interaction between industry and the environment is certainly much more effective. For example, the environmental department itself can cooperate with the industry that we will help you industries." (A.A).

"Not all policies should be confronting and coping policies. They should be included in incentive debates more. When an industrialist sees these policies, he will be even willing to lend money to reduce pollution, as he realizes that, if the pollution continues, he must pay a fine of billions of dollars a year. Then when he does this work, he doesn't need to pay a fine. In addition to this, it has also the return of capital, interestingly the return of capital will be very sweet and fine for the industrialist." (F.SH).

#### 1.6 Tax penalties

Some participants said that current penalties are not comprehensive enough and that they do not include all aspects of environmental pollution. It is necessary to apply fines in a more stringent way to correct incorrect approaches in order to establish justice in collection of pollution taxes among different industries. The viewpoints of some participants from the Department of Environment or industries' are as follows:

"Perhaps, a change should take place in its rule set, which means that they should have stricter and more enforceable rules. You go and see how much the fine of cutting a tree is, how much fine has been written for it, fines are very low, in fact it has not been given importance. Some aspects of pollution may have not been included in the rule set, such as paying attention to soil contamination, at all, this aspect of contamination may have been disregarded because we have the pollution of the climate but pollution of the soil hasn't so far been seen by anyone." (H.M).

"The environment should also have a strong leverage that the industry knows if it does not pay a fine by coping or coping multiple forms. It will prevent them from selling; heavier fines will have to be paid, so they must be convinced to do so." (F.SH).

#### 1.7 Poor tax system

Regarding this, the interviews showed that, the Administration of economic and finance unfortunately has no comprehensive system for obtaining financial information and tracking industries for calculation and the methods of collecting taxes, and avoiding tax evasion in the industry. Besides, the large volume of production exemptions and the absence of multidimensional policies, in particular tax incentives, to reduce industrial pollution are among the other weaknesses of the system. Regarding this some tax auditors said:

"Given the volume of exemptions we have and the lack of a comprehensive and integrated system that can identify all the views, we cannot therefore collect a tax that has been determined based on justice. We may have a large amount of tax evasions that have not been filed in any tax administrations in the county at all. There are no tax organizations in the country." (D.Z).

"The main issue is tax justice that, as we have weak intelligence infrastructure, there is no transparency in our economy. We don't have comprehensive information on bank transactions." (M.Z).

## 2. Industry

### 2.1 Industry framework to reduce pollution

According to our participants, the industry's approach to reducing pollution should be based on global guidelines, close cooperation with relevant executive agencies, information transparency and participation and cooperation in the deployment of environmental systems. And in conducting regular self-regulatory activities to reduce pollution, the industries should be equipped with strong HSE cores. Some comments from the experts on environment and industry are as follows:

"The industry must have an environmental representative in the industry in order to meet its environmental requirements, the coordinator of the environment with industry. One who is knowledgeable about up-to-date environmental rules and experienced and well-trained"(F.SH).

"The importance of green space, contributing to continuous environmental monitoring by industry owners or having an expert on the environment, or deploying environmental management systems in industries will reduce this amount of tax and ultimately help increase justice"(M.Z).

## Discussion

The results of the present qualitative study, which was carried out by content analysis, were divided into two categories, namely, industry and executive and regulatory organizations (Administration of economic and finance and the Department of Environment). Eight subcategories, namely, tax justice, weaknesses of the tax system, tax culture development, tax calculation and collection, tax laws, tax incentives, tax penalties, and the environmental framework adopted by the industry were drawn. The subcategory tax justice included the most codes drawn followed by tax culture development and tax incentives. The study of these three categories shows that, from the perspective of the experts in all three groups, although tax justice, culture development, and the implementation of incentive policies, while enforcing laws and regulations, are considered to be very important and fundamental issues in the planning, public acceptance and social success of environmental policies, they have not been given adequate importance in domestic policies;

therefore, one of the causes of the failure of domestic policies is assumed to be the lack of these factors, especially justice and culture development, as a prerequisite for the codification of environmental laws and regulations. In this regard, a study conducted in Hong Kong in 2017 referred to the basic role of public support in achieving government and political goals, and factors such as the political trust of the people in the government to meet the people's expectations, as well as the establishment of a fair and equitable procedure in the enforcement of policies (since people are the target of most of these policies) are considered effective factors for public support of environmental policies <sup>5</sup>. In one study entitled legal-judicial review, the process and role of the enforcement of citizenship rights in the environment, with an emphasis on culture development and public education, considers the institutionalization of this subject in culture and social behaviors to be crucial. Another study in Australia examined the role of education in the Kuznets environmental curve, which shows that the use of energy resources is substantially related to education level, and assumes that education directly affects the environment and, in the initial stage, worsens it, and then improves it through developing education and increasing it to a certain level <sup>18</sup>. Another study to examine the importance of environmental education in identifying the determinants of green behavior identified it as a powerful tool for encouraging citizens to do green behavior <sup>19</sup>. In a comparative study of environmental laws and regulations in Iran and Europe with respect to air pollution control and quality in 2017, the need to adapt the laws to the realities, needs and problems of society, as well as the efficiency and enforceability of the rules in solving the problems were highlighted, and sufficient care and study to codify laws was regarded as highly effective for their efficacy. Comparing Iran with European countries, the study reported that domestic fiscal and tax regulations for pollution are poor in terms of the use of incentive systems, so that there is no financial incentive proportionate to pollution taxes. In

contrast, the tax incentive laws in the financial and tax areas in Europe have a special status because, based on experience with incentive measures, they have more public acceptance than punitive measures and are very influential in the tendency of individuals and institutions to comply with pollution laws<sup>11</sup>. In this regard, a study in China in 2018 on green productivity and environmental subsidies examined the effects of these subsidies on green productivity, and showed that, despite the fact that subsidies had adverse effects on green productivity from 2010 to 2013, these effects diminished since 2014 and led to a substantial increase in productivity in 2015. Therefore, they suggested an increase in the severity of environmental subsidies for companies and strengthening supervision on them<sup>20</sup>. However, some experts further emphasized the need for more stringent punitive policies to develop culture. To confirm this, comparison of pollution laws in Iran and France showed that stricter policies in France, including stupendous penalties for pollution and long-term imprisonment, rather than stopping work and damaging production, are more effective than current laws and regulations in Iran<sup>11</sup>. In this regard, another study on the prevention of environmental fines emphasized the need for the approval of pre-emptive and punitive laws and the establishment of NGOs to prevent any misconduct, and considered it to influence criminal policies<sup>21</sup>. The study of khoshakhlagh and et al. In 2014 to investigate green tax and its environmental standards also highlighted the need to levy environmental taxes on imports and recommended it as an appropriate tool for sustainable development in the economy<sup>8</sup>. Having a comprehensive view of policy implementation in solving problems, some researchers argue that if there are administrative and economic problems (such as the difficulty of collecting taxes), the implementation of incentive policies such as the establishment of subsidies seems to be more effective in terms of both the environment and the level of social acceptance. Meanwhile, in the event of the government's inability to pay subsidies, the policy of trade liberalization or the reduction of

import tariffs for industrial products is considered a good alternative<sup>22</sup>. Emphasizing laws that support production, other researchers also recommend the use of programs, grants and international guarantee of enforcement<sup>12</sup>.

### Conclusion

The results of this study indicate that there are many shared points among the viewpoints of the experts from all three groups. These shared viewpoints can provide a good interactive framework for constructive collaboration between executive organizations and industries. According to the perspective of the experts, it is essential to reform the laws, approaches and environmental policies. Emphasizing and focusing on education and culture development, both at the public and at the level of industry authorities and managers, strengthening the HSE cores, setting up and strengthening NGO's in pursuit of environmental issues, Avoiding unilateralism in the use of environmental instruments, the necessity of implementing and increasing incentive policies to reduce pollution, strengthening the levers of executive and supervisory organizations to change and modify behaviors, as well as paying attention to intergovernmental participatory training methods, are necessary to increase the cooperation of polluting industries to reduce pollution. One of the limitations of the present research was limited access to experts on the study subject and, to some extent, limited dependable literature in question. It is suggested that further research in this field, with caution, be based on the generalization of the findings, using more interviews, to carry out a wider and more comprehensive examination of the dimensions and effective factors for the application of a type of environmental instrument or policy before the implementation of the plan in question. Meanwhile, given the special focus of recent studies on green (Environmental) tax policies, a comprehensive study should be carried out to determine the pollution rates of each region and to formulate and enforce environmental penalties or taxes based on regional coefficients.

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## Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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