



Analysis of Scientific–Executive Capability and Up-to-date of Iran's Parliament Approvals in Drought Crisis Management

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Abstract

Drought is one of the most complex and at the same time most underrated phenomena compared to other natural disasters, yet it has had drastic, and sometimes catastrophic, effects on essential human activities across the world since ancient times. Drought is a slow-moving hazard with negative social and environmental consequences. Crisis management is part of the drought management cycle. In Iran, crisis management is the primary strategy adopted against this crisis, and consists of a spectrum of related regulations that codify the responsibilities of every organization, institution, and people from all walks of life against drought. One of the main flaws in crisis management is the absence of suitable laws and regulations and their proper execution. This study aims to review drought crisis management focusing on parliament approvals. The study results showed that there are no comprehensive and exclusive regulations against drought in Iran. There were also certain challenges associated with the implementation of these laws. This study can help reduce vulnerabilities and improve coordination in the management of drought crisis.

Keywords:

Drought crisis, laws and regulations, water resources, agricultural water wells

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INTRODUCTION

Drought is a natural feature of climate that can occur across the world and in all types of climates. This phenomenon can result in considerable damages to agriculture, natural resources, environment, water resources, and human life (Doostan, 2015). Drought has a long history in Iran, though it has exhibited a special and continuous status since the late 90s; such as the continuity and occurrence of significant processes in climatic and hydrological variables (Torabi, 2015), and the decline of water zones, extensive economic damages, and social consequences (Keshavarz et al., 2013). Drought consists of two parts in general. First, climatic which involves reduced precipitation and accessible water, and second, water demand. Governments normally focus on the later by reducing demand (Sabouri et al., 2009). Drought is a climatic phenomenon that is out of our control. However, the management of its harmful effects and its resolution with the least tension is in the hands of managers and policymaker, who can manage this phenomenon with clear plans and policies. Drought management works towards minimizing the adverse effects of drought and transitioning from crisis management to risk management as an inevitable practice. Today, there are two approaches for drought management, namely crisis management and risk management. Risk management attempts to reduce and counter the effects of potential hazards. Whereas, crisis management aims to minimize consumption costs caused by the crisis, on the one hand, and to reduce the economic, security, social, and cultural effects of the crisis, on the other (Mahmoudzadeh, 2007). Crisis management has traditionally been the solution adopted against drought (Jafari et al., 2012). Crisis management is part of the drought management cycle. In cases of drought, governments seek impact assessment, response, improvement, and resumption of activities in order to restore a region to its pre-crisis status (IDMP, 2017). It can be argued that the Fair Water Distribution Act is

the most comprehensive law on water resources adopted after the Iranian revolution, which is premised on Nationalization of Water Resources Act (approved 1968) codified in 1982. Article 33 (B) of this act specifies that when the water is not extracted by the government, it can levy fees on the consumers for its supervision and services given the economic and social conditions in every region, if necessary. Legal vacuum and ineffective implementation are two major challenges in crisis management. A historical review of related laws can help to resolve the existing legal issues. This study aimed to review the legislative history and activities related to the management of drought crisis. This study can help reduce vulnerabilities and increase coordination in crisis management. Considering the importance of drought and its effects on the society in cultural and social terms, this study attempts to explore drought crisis management in view of parliamentary approvals.

Definition of drought

The continuity and extension of drought periods poses a serious threat to agriculture. This has led to the identification of drought-tolerant plant types and varieties (Kozminska et al. 2019). In its most general sense, drought results from low precipitation over an extended period of time, for one season or more. Therefore, this water shortage affects certain activities, groups, or environmental sections. This results from natural events (i.e. lower-than-expected precipitation) and human demand for water, and human activities can aggravate the effects of drought. Drought cannot be regarded as a mere physical phenomenon (NDMC, 2017). Drought is an unanticipated or severe dry spell with significant negative effect in the ecosystem, economy, or the society (Sayers et al., 2017). Droughts can be classified into four types, namely meteorological, agricultural, hydrological and socio-economic drought. Agricultural drought generally results from warm and dry periods with low supply of soil water

for growth of crops and forage. Shortage of moisture during the growth season will stress out and even destroy agricultural products (Andreas et al., 2014).

Crisis Management

Crisis refers to an event created naturally or by humans either suddenly or gradually and imposes hardships on the human society whose elimination requires contingency, fundamental, and emergency measures (Savad-Kuhifar and Zokayi Fateh, 2013). Crises differ in nature, magnitude, and intensity, but their consequences can disrupt the functional capabilities of inflicted organizations. Crises threaten the people or properties and result in a negative effect and damage to an organization, shareholder, or an industry. Meanwhile, its likelihood, ambiguity, and time pressure can affect decision-making (Hale & Dulek, 2005). The threat of possible damages in a crisis can put pressure on an organization, its shareholders, or an industry. Crises can create three types of threats. With the loss of public security, money, and fame, some crises can lead to loss of life (Dilenschneider, 2000). Crisis management is a relatively new field of science that takes different shapes at the national, provincial, and urban levels. Crisis management assesses the potential threats and available resources and attempts to strike a balance between available resources and capabilities and the probable threats, so as to control the crisis. Crisis management is a complicated task. It often can be disappointing. However, the greatest mistake is assuming that our society is immune to crisis. It must be borne in mind that no crisis is exactly the same as others, still they may have significant similarities. Distinguishing and understanding these similarities can function as a key for planning against crisis and moderating its adverse effects (Garkaz et al. 2004).

The best method to be prepared against crisis management is creating a crisis management plan, updating it at least once a year, putting together a trained crisis management

team, testing the plan and the team through drills at least once a year, drafting a crisis management plan including dark web content and selection of a framework for describing the crisis, examining the legal section, and pre-approving this message (Coombs, 2011). The crisis management capacity is a basic element of good governance that, like testing a government's capacities, can provide suitable solutions at the right time to protect citizens and businesses and minimize the effects of catastrophes. The adoption of suitable resources by national authorities and a proper institutional framework are vital for coordination (OECD, 2013). The response and management process involves four phases of planning, response, recovery (restoration and correction), and flexibility (Schwartz, 2015). Part of crisis management is concerned with pre-disaster planning that includes predicting and preventing crises. Another part relates to existing crises and their resolution. Crisis management is a dynamic system designed to minimize the effects and damages of crises and restore the system to its original status. Various definitions have been put forth for crisis management, however, scholars see eye to eye on factors such as the duty of crisis management, fast crisis management, and effective crisis management. Overall, crisis management consists of five stages, namely organization, communications, decision-making, recognition of crisis factors, and design (Habibzadeh Maleki and Javadian, 2010).

Drought Crisis Management

Drought conditions ensue inadequate precipitation during a long period of time, usually one or more seasons, leading to water shortage (NDMC, 2015). In meteorology, drought is a long period of dry weather activity following reduced precipitation that can gravely reduce the water supply necessary for activity. Drought can also be an extended imbalance between precipitation and evaporation (EPA, 2016). Historically, little attention has been given to preparedness,

prevention or prediction, early warning measures (risk management), and risk-based financial development for drought (IDMP, 2017). The crisis management cycle has certain stages such as disaster, impact assessment, reaction, recovery, and renovation. It is a type of reactive and recovery-based management (Wilhite et al., 2014). According to FAO, key elements of the drought management policy are promoting standard approaches to vulnerability and impact assessment, planning and implementing drought monitoring, early warning and information systems, enhancing preparedness and mitigation plans and programs, and planning and implementing emergency and relief measures (FAO, 2016).

Wilhite et al. showed that the stages of crisis management cycle include effects, recovery, and reconstruction (Wilhite et al., 2014). Masendeke and Shoko (2014) and Habiba et al. (2012) showed that traditional solutions of farmers against drought include livestock management, simultaneous farming of supplementary products and early cultivation, crop diversity, change in consumption patterns, and migration. Campbell et al. (2011) classified the actions of Jamaican farmer against drought into four phases: First, methods used during planting, such as farming of drought-resistant crops, early cultivation, multi-purpose crops, lowering of the acreage, and refraining from cultivation during drought.

Second, technical solutions to preserve moisture, such as mulching, using trickle irrigation, and adjusting the irrigation periods. Third, solutions during the drought period, including purchasing water, dividing water, using plant-based fertilizers, and collecting a part of the crop for water absorption. And fourth, solutions to compensate for drought, such as reducing the acreage, looking for non-agricultural jobs, working on other people's farms, temporary migration, and sales of livestock. The first step for curbing the crisis is assessing the condition and collecting precise data as soon as possible (Baubion, 2012). In

some countries, incentives and supportive policies are employed to prevent the cultivation of high water-demand plants.

HISTORY OF CRISIS MANAGEMENT

The idea of crisis management was first proposed by Robert McFarlane in the middle of the missile conflict between the US and Cuba. Therefore, crisis management was discussed since 1970s in the sense we know today. In Iran, the first steps were taken in 1959, but the Crisis Prevention and Management Committee was officially established in 2004 (Abbasi, 2009). On Dec. 9, 1958, the "Establishment of Iran's Civil Defense Organization Act" was approved aiming to protect the lives and properties of the people against air disturbances, natural incidents, and disasters, reduce their adverse effects, and provide mental support, nurture interest, and establish mutual cooperation between individuals in normal and emergency situations. This organization was supervised by the Ministry of Interior, and was governed directly by the governor-general and governor in counties. The ministries of interior and war were tasked with implementing this act. Up until the Islamic Revolution, there were no clear structures on the management of disasters in the areas of prediction, early warning and impact mitigation, preparedness, confrontation, and reconstruction. The related activities were envisioned in some organizations here and there. On Apr. 29, 1969, the "Flood Risk Prevention and Control Act" was approved by the Parliament with eight Articles and five Notes. On May 16, 1972, the "Correction to Iran's Civil Defense Organization Act" was passed by the National Consultative Assembly of the time. Since then, Iran's National Civil Defense Organization with its entire assets, budget, and staff fell under the power of the ministry supervised by the "Deputy Prime Minister".

For the implementation of the Article 123 of the Constitution of the Islamic Republic of Iran, the National Crisis Management Act" was approved on a Monday on Jul 29, 2019

during an open session by the Islamic Consultative Assembly. This act was approved by the Guardian Council on Aug. 14, 2019, and notified to the Assembly on Aug. 25, 2019 for implementation. Crisis management organization in Iran was no exception to the rule and fulfilled its responsibilities under the direction of the president, first deputy of the president, prime minister, president's executive deputy, and minister of interior intermittently. The Crisis Management Organization is a governmental body that was established by the Ministry of Interior in 2008. According to the "Establishment of Iran's Crisis Management Organization Act", its objective includes identification of natural crises in the country and its announcement to related bodies by the Minister of Interior (Deputy of Crisis Management Supreme Council); determination of local crises in provinces and its announcement to province and county bodies by the governor-general and governor respectively. In this act and its executive bylaw, crisis levels are divided into national, regional, provincial, and local scopes. Given the crisis management structure, the responsibility of determining a crisis at the national/regional scopes lies with the Minister of Interior and at the provincial/local scopes with governors-general and governors appointed by the Minister of Interior (National Crisis Management Act approved by Islamic Consultative Assembly). Iran's Supreme Council of Crisis Management aims to coordinate activities of bodies and institutions affiliated with the three branches, armed forces, and all institutions and bodies supervised by the Supreme Leader of Iran. This council is headed by the President, and in his absence, by the Minister of Interior as the deputy of the council. The secretariat of the supreme council is based in the Crisis Management Organization, and its secretary is appointed by the Council of Ministers according to Article 5 (2) of the aforementioned act. According to Article 3 of this executive bylaw, the responsibilities of this council include:

Coordinating the activities associated with the fourfold stages of crisis management;

Reviewing and confirming training, promotional, and information policies via media and its proposal to the supreme council supervising the performance of the technical committees;

Reviewing and confirming proposals concerning national crisis management and its presentation to the supreme council;

Reviewing and confirming proposals concerning change in the numbers, subjects, job description, and related affairs;

DROUGHT MEASURES AND LAWS

Act on the Accession of the Government of the Islamic Republic of Iran to the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD). This act consists of one single article. Article 1. Cooperation with other sub-regions and regions in shared and regional plans in North Mediterranean region is permissible and can be drafted and implemented in cooperation with other regions, particularly North Africa. This act was passed by the Islamic Consultative Assembly on Dec. 31, 1996, and approved by the Guardian Council on Jan. 15, 1997. This single article enabled the Iranian government to submit an Introduction with 40 Articles and 4 Appendages and the positive documents to the UNCCD.

The Irrigation Water Fixation Act has one single article:

Mean water cost from regulated waters in modern networks is 3% of the crop;

Mean water cost from regulated waters in integrated canals is 2% of the crop;

Mean water cost from regulated waters in traditional canals is 1% of the crop.

Article 107. The Third Economic, Social, and Cultural Development Plan

enables the government to codify the use of water in streams, irrigation systems, pumping stations and deep and semi-deep agricultural wells based on the optimal agricultural

water consumption model in order to implement water conservation policies and lead agricultural users toward optimal operation; to execute the operating system, cooperate with the non-governmental sector (water right holders and owners), and create institutions for water exploitation; and to determine the water price based on the Irrigation Water Fixation Act.¹

The Water and How to Nationalize It Act consists of 65 Articles and 35 Notes and was approved by the Senate of Iran on a Thursday on Jul. 18, 1968 and then by the Islamic Consultative Assembly. The Fair Water Distribution Act was passed by the Islamic Consultative Assembly on Mar. 7, 1983 and later approved by the Guardian Council. It can be argued that the Fair Water Distribution Act is the most comprehensive law on water resources adopted after the Iran's Islamic Revolution, which is premised on Nationalization of Water Resources Act (approved 1968) codified in 1982. Article 33 (B) specifies: When the water is not extracted by the government, it can levy fees on the consumers for its supervision and services given the economic and social conditions in every region, if necessary (Khalilpour, 2018).

The Act on Deciding on Unlicensed Water Wells consists of a single article and seven Notes, approved on a Sunday, on Jul. 4, 2010 by the Islamic Consultative Assembly and confirmed by the Guardian Council on Jul. 14, 2010. According to this act, "the Ministry of Energy shall provide inclusive information for the stakeholders and issue operating licenses for all active unlicensed agricultural water wells across plains in Iran, drilled prior to 2016 and identified by the Ministry of Energy and its subsidiary provincial bodies, based on the related water capacity of the plain, safe distance from other wells, not causing loss to others and the public, conditioned on pressurized irrigation by the appli-

cant." This act is an example of misjudgment on the part of the law makers (Ghasemi, 2016).

This act is incomprehensive, ambiguous, and open to interpretation. For example "all active illegal agricultural water wells" targets only active agricultural wells and not any other type of well drilled for different purposes. Another legal gap is that since Fair Water Distribution Act serves as the dominant law in this area, the Act on Deciding on Unlicensed Water Wells has in some cases failed to adhere to its definitions. Generally, continued rule of this law resulted in irreparable damages to the country's water resources, and the issue must be subjected to scientific and practical analysis for a viable solution (Abdollahi and Behnam, 2018). Since the year in which a well was drilled is significant in this act for deciding on issuing (or not issuing) an operating license, it must be noted that it is difficult and sometimes impossible to determine when a well was drilled. When the licensing commission, as the primary authority, and/or the certified justice expert ultimately investigating the case, fail to find documentations on when the well was drilled, they have to confirm that it was drilled prior to 2006 under pressure by the owner and local bodies. This has resulted in the issuance of numerous licenses for illegal wells (Bakhsh et al. 2014).

Regardless of its negative consequences, this act suffers from essential legal flaws too. More specifically, instead of punishing the offenders, this act is rewarding them. According to Article 45 (HA) of the Fair Water Distribution Act "Anyone drilling or operating a well or qanat in contradiction to the provisions of this act shall incur a penalty". On the other hand, this brings the performance of related bodies under question for failing to promptly fulfill their responsibilities. Since, before this act, the respective organization had to file a lawsuit against those drilling or operating such wells and shutting them down according to their legal responsibilities. This act, not only rescued the offenders from pun-

¹Note: In order for a standard exploitation of water, protection of its actual value, and facilitation of its transmission, the government shall draft and issue water documents for the water right holders and owners.

ishment, but also awarded them with a license. Whereas, many citizens who adhered to the laws and requested a license had to ask themselves why those breaching the law were given privilege (Ghasemi Ahd. 2016).

In terms of financial matters of drought, the "Act on Financing for Compensation of Drought and Frost Damages" was passed by the Islamic Consultative Assembly on Oct. 5, 2004 consisting of 4 Articles and 1 Note, and approved by the Guardian Council on Oct. 13, 2004. Article 3 of this act, beginning with Mar. 21, 2005, banned the collection of any fees from the agricultural and animal husbandry sectors as supervision fees. It is worth mentioning another Islamic Consultative Assembly approval from Jul. 4, 2010. According to this act, the Ministry of Energy is tasked with issuing an operating license to all active unlicensed agricultural wells in plains across the country drilled prior to 2006 and identified by the Ministry of Energy and its provisional subsidiaries based on the related water capacity of the plain, safe distance from other wells, not causing loss to others and the public, conditioned on pressurized irrigation by the applicant (Khalilpour, 2018). According to Article 29 of the Fair Water Distribution Act (Mar. 7, 1983), the Ministry of Energy is also responsible for controlling floodwaters to supply agricultural water needs.

The Act on Establishment of National Committee for Mitigating Natural Disasters consists of a single article and 6 Notes, and was approved by the Islamic Consultative Assembly on a Wednesday, on Jul. 31, 1991, and confirmed by the Guardian Council on Aug. 7, 1991. The Council of Ministers enacted the executive bylaw of the above act. Accordingly the national committee for mitigating the effects of natural disasters was set up with one coordination committee and nine research-technical subcommittees. One of these subcommittees was dedicated to droughts.

Article 14 of this act specifies the responsibilities of related authorities and institutions. Paragraph PE of this article refers to the responsibilities of the Ministry of Energy in the

area of water and drought, noting that it is responsible for taking measures to prevent drought in cooperation with the Ministry of Agriculture Jihad, Meteorological Organization, and other bodies associated with Article 2. This act does not directly specify the duties of the Ministry of Agriculture Jihad in the area of drought. According to Article 6 thereof, the Minister of Agriculture Jihad is one of the executive policy-makers of crisis management in the country. According to Article 14 of the Crisis Management Act (responsibilities of crisis management authorities and institutions), the responsibilities of the Ministry of Agriculture Jihad include: "Undertaking preventive measures concerning epidemics, pests, animal and plant diseases, and zoonotic diseases in cooperation with the Meteorological Organization, Ministry of Health, Treatment and Medical Education, Ministry of Energy, and related authorities and institutions subject to Article 2."

DROUGHT-RELATED ORGANIZATIONAL REGULATIONS

In the session held on Feb. 25 2018, the Council of Ministers approved the Decree No. 158969/TA55092 concerning the establishment of a national committee on "Compatibility with Water Shortage" proposed by Ministry of Energy, Ministry of Agriculture Jihad, Ministry of Interior, and Ministry of Industry, Mine and Trade as well as the Department of Environment and the Planning and Budget Organization based on the Article 138 of the Constitution of the Islamic Republic of Iran.

Article 35 of the sixth Development Plan is dedicated to measures for tackling water shortage and similar issues. This article specifies that in order to deal with the water shortage crisis, the government is obliged to release of environmental water rights for land sustainability, increase agricultural production, balance groundwater reservoirs, improve efficiency, and restore water level to 11 billion cubic meters by the end of the Devel-

opment Plan.

The fifth session held on Jul. 8, 2008, the Iranian Drought Center, headed by the executive deputy of the President, culminated in the establishment of the National Drought Warning and Monitoring Center (NDWMC) in the Meteorological Organization of Iran. Following this act, the deputy of administrative renovation of the Presidential Deputy for Management and Human Capital Development authorized the creation of organizational posts at the National Drought Center within the Meteorological Organization's headquarters through a letter dated Oct. 29, 2008. As specified by this letter, the basic responsibilities of the center include:

- Collecting drought data
- Monitoring, predicting, early warning, and issuing drought warnings
- Sharing effective information with the public and executive bodies.

As reported by the Cabinet Information Center, this organization was established in the Meteorological Organization of Iran given the severe drought in the water year 2007-2008 and notification by the Supreme Leader of Iran for the establishment of a Iranian Drought Center, based on Paragraph (3) of the sixth drought commission session, dated Jul. 8, 2008.

According to Article (6) of the executive bylaw on climate change convention and additional protocols subject to decree of Jan. 26, 2013 of the Council of Ministers, the Ministry of Roads and Urban Development, and the Meteorological Organization are responsible for completing the "National Climate Monitoring Network" in cooperation with the Ministry of Energy, Ministry of Agriculture Jihad, Ministry of Science, Research, and Technology, and the Iranian Space Agency.

The existing drought regulations can be criticized in that many of them are groundless and useless in today's complex and competitive world. This flaw sometimes either makes their implementation impossible or results in new challenges after implementation. Laws are in close connection with each

other and even one poor law can incapacitate the government and the justice system. Many of the current challenges in the country in the areas of unemployment, water shortage, extensive climatic changes, economic rent, and bribery originate from immature laws that have led to the devastation of many sectors in the country. Considering the Water Act approved by the Islamic Consultative Assembly in 1982, it can be argued that entrusting all national waters to the government has taken away the power of the people and the private sector over their own water sources. This act has very much destroyed the grounds for innovation, competition, and increased efficiency in the water management and industry. It has overlooked the historical right of water right holders for rivers, thousands of springs, and tens of qanats, and has removed the people from the water management field. If the law protected the right of these individuals, people and NGOs, some of which have a thousand-year-old history of water management, would not allow a well hundreds of meters deep using electrical pumps to draw water only few meters from their qanat, spring, or water canal. The parliament's decision to transfer all water rights to the government and removing the private sector and public cooperatives of qanat owners from water management has laid the foundations for administrative corruption, economic rent, and reduced efficiency of the county's water industry (Nazem Sadat, 2018).

CONCLUSION

This study explored the concept of drought and crisis management, the history of crisis management in Iran and related laws, the status of drought management in these laws, and drought-related enactments in the area of water and crisis management. Overall, it can be concluded that there is no comprehensive law dedicated to drought and all its aspects in Iran. Merely, Article 14 (PE) of the National Crisis Management Act addresses the topic and assigns the responsibility to the Ministry of Energy. The same way adequate

Table 1
Key Measures and Regulations on Drought Management

No.	Measure	Legal support	Result
1	Center for Combating Drought Crisis, 1996	Council of Ministers Decree, Mar. 18, 1997 (Sixth Administration)	This center was dissolved on Dec. 12, 1998, less than two years after its establishment.
2	Iranian Drought Center, 2008	Council of Ministers Decree (Ninth Administration)	Establishment of National Drought Warning and Monitoring Center on the fifth session Apr. 13, 2008.
3	National Drought Warning and Monitoring Center	Enacted by Iranian Drought Center	At the beginning of this operation, this center sought to launch the National Monitoring System in cooperation with the Ministry of Energy and Ministry of Agriculture Jihad. This goal, however, was not achieved after numerous sessions. At the moment, it only provides reports on the conditions of drought. This center and its reports do not hold a clear position in the current management of this crisis in the country.
4	Specialized Committee on Drought and Frost, 2012	This committee is part of the "Specialized Committee on Drought, Frost, and Agricultural Hazards", established following Article 9 (Alef) of the Act on Establishment of Iran's Crisis Management Organization, approved on May 9, 2008, under the supervision of the Ministry of Agriculture Jihad and aiming to control hazards and crises in the agricultural sector.	Pursuing the following objectives: Reducing the effects of drought, frost, pests, diseases, and other hazards in the agricultural sector aiming for a sustainable food security in the country. Realizing the policies of the agricultural sector by creating security for capital owners at times of crisis. Improving the awareness and readiness of the agricultural beneficiaries by establishing the warning and monitoring system. Improving the status of risk management in the agricultural sector by establishing the monitoring, early warning, and warning system.
5	International Drought Initiative Plan	This plan was devised by Iran's proposal at the 19th Intergovernmental Council session of UNESCO in 2010	This plan is currently overseen by the Ministry of Energy in the Urban Water Management Center.
6	National Strategy and Action plan for Management and Alleviation of Drought in Agricultural Sector (2006)	This plan was drafted with the help of the Cultivation Department of the Ministry of Agriculture Jihad and the Food and Agriculture Organization (FAO, 2007).	It took this plan nearly two years to be drafted, and it was attempted to attract the most participation through various workshops and interactions with executive bodies and universities. The end of the plan coincided with the inauguration of the ninth administration, which is when it was sidelined.
7	Act on Compensation and Prevention of Drought Complications (2000)	The executive bylaw of this act was proposed to the Iranian Drought Center and approved by the Council of Ministers within one month. Approved on May 9, 2000	This act was proposed to compensate for and prevent damages caused by drought. A part of this act allowed the government to allocate resources up to 1,500 billion IRR of the envisioned resources to the Keshavarzi Bank based on the proposal by the Planning and Budget Organization.
8	Act on Prevention of Drought Complications and Compensation for Damages (2001)	This act consists of a single article with no Notes and was approved on an open session, on a Wednesday, on Jun. 20, 2001 by the Islamic Consultative Assembly, and approved by the Guardian Council on Jul. 4, 2001	In order to prevent drought complications and compensate for damages, the government was obliged to allocate 4000 billion IRR from envisioned resources to the Iranian Drought Center.

Table 1
Continue

No.	Measure	Legal support	Result
9	Act on Financing Compensation for Damages by Drought and/or Frost (2004)	This act consists of a 4 articles and 1 Note and was approved on an open session, on a Tuesday, on Oct. 5, 2004 by the Islamic Consultative Assembly, and approved by the Guardian Council on Oct. 13, 2004.	Detailed review of the provisions and documents show that these credits were only slightly in keeping with risk management. As mentioned earlier, after two decades of struggle with this phenomenon, Iran still lacks a national Drought Monitoring System whose cost is absolutely insignificant compared to the allocated credits. These credits have had little role to play in reducing vulnerability to drought.
10	Act on Compensation for Damages by Drought and Frost (2008)	This act consists of a single article with 2 Notes and was approved on an open session, on a Tuesday, on Jul. 1, 2008 by the Islamic Consultative Assembly, and approved by the Guardian Council on Jul. 2, 2008	This act authorized the government to allocate a sum of 45,000 billion IRR from the Foreign Exchange Reserve Account, in addition to the table included in the 2008 Budget, in order to support the afflicted individuals, beneficiaries, and producers in the agricultural sector against damages by drought and frost and compensate for loss of farmers and producers.

precipitation and good laws can help with crisis management and combating drought, flawed laws can exacerbate agricultural issues and their adverse socioeconomic effects. The Ministry of Agriculture Jihad is not directly tasked with any responsibilities by Parliament enactments. The main responsibility on drought is assigned to the Ministry of Energy. Considering the direct contact between Ministry of Agriculture Jihad and the farmers and the effect of its performance on countering drought, it seems necessary to revisit related laws in order to transfer some responsibilities directly to this ministry.

The findings indicate that numerous laws have passed and multiple institutions have been established, but unfortunately, there were no coordination and operational coherence between these bodies, which calls for revisiting the existing laws and enhancing inter-sector cooperation.

The implementation of the national water policy, codification and approval of new laws, organizational changes, management and planned activities in the area of water and drought, reform in links between laws, land,

and water laws, and attention to the decentralization policies

One of the main reasons for high demand for agricultural water in Iran is the great gap between the economic price of water and the current prices. Therefore, there has been a severe increase in overexploitation of wells, increased depth, and unauthorized drilling in the past few years.

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