

The Effects of ICTs-mediated Citizen Participation on E-governance Performance: Do Technology Level and Approach Matter?

M. Jae Moon, Yonsei University

Eric Welch, University of Illinois at Chicago

**The Annual Conference of the Chinese Society for Public
Administration**

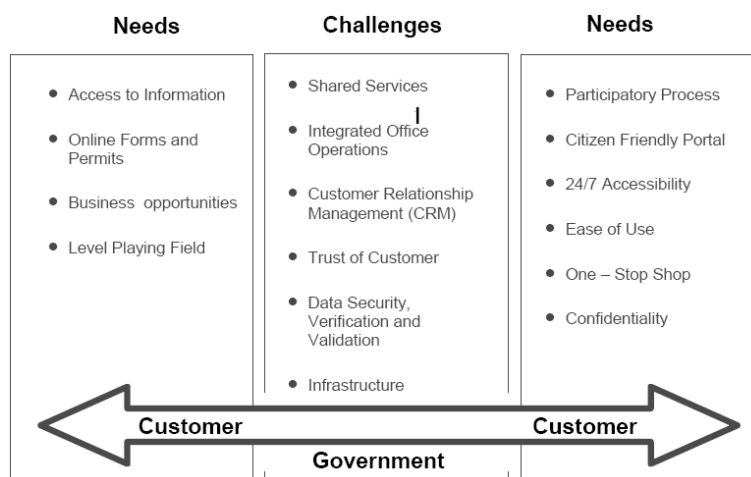
Research Questions?

- **Does Proactive Application of Various Levels of Information Technology Help E-government Performance?**
 - **Linking Citizen Participation and Information Technology with E-government Performance**
- **Levels of Proactive Approach to Citizen Participation: Information Dissemination- Invitation to Meetings-Facilitation of Citizen Participation**
- **Level of IT Applications: Conventional, Web 1.0, Web 2.0**

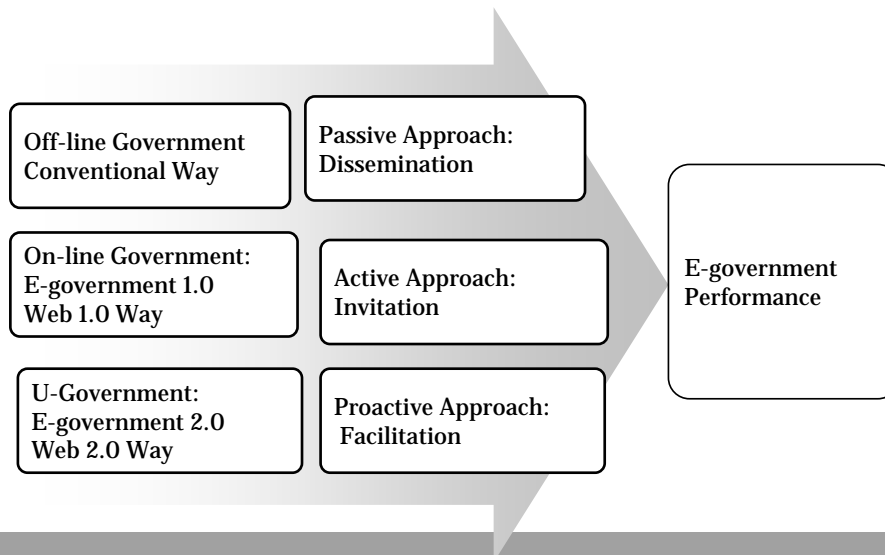
Background: E-Government Research

- What, How, Why, Who?
- Adoption/Diffusion
- IT-Applications: Front / Back Office Applications
- An Evolutionary Perspective?
- Technological Determinism
- Social and Human Factors?
- IT and Productivity/Performance
- E-government / E-governance (Chen and Moon, 2011)/ M-government
- Web 1.0 → Web 2.0

UN's E-government Model



Approaches to Citizen Participation Levels of Technology



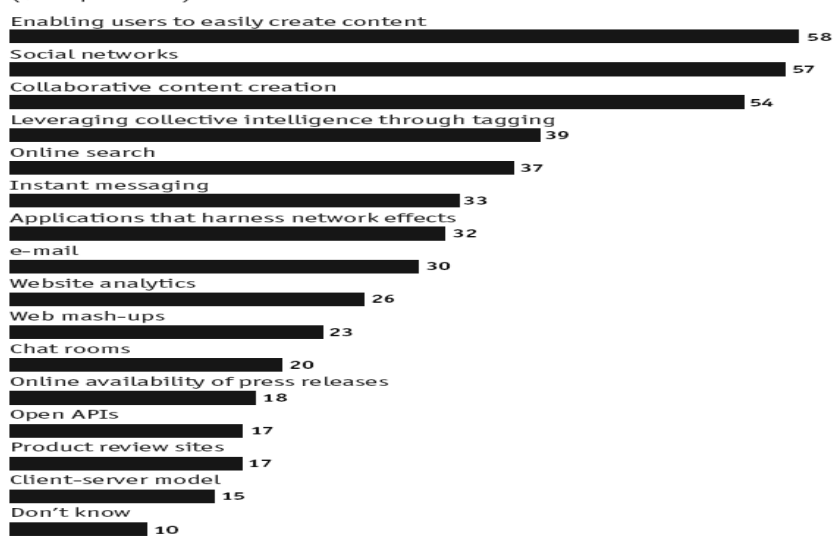
Increasing Budget but Not Satisfactory Yet...

- During the Internet boom of the late 1990s, e-government entities raced to develop Websites, and high levels of e-government spending became the norm. Spending on e-government-related initiatives has continued to grow-indeed, in 2009, the US government is expected to spend more than \$71 billion on IT, of which an estimated 10 percent will be related to e-government (McKinsey, 2009)
- But.... E-government is not yet satisfactory and faces a plateau
- New Technological Development.... Web 2.0, ...

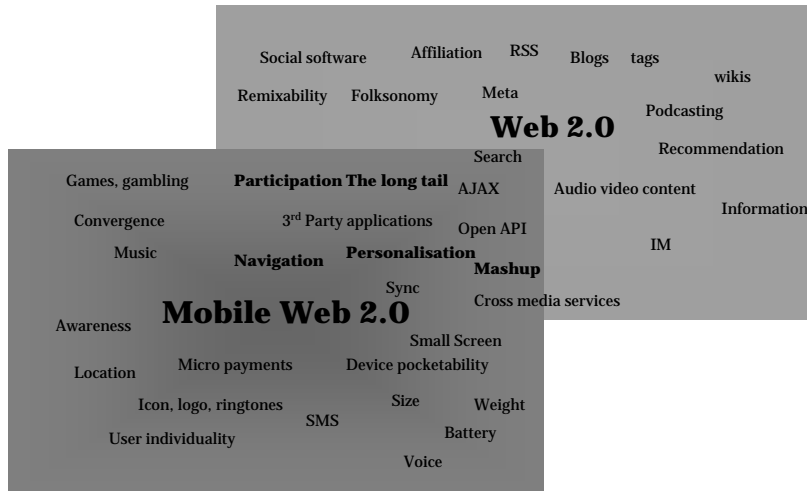
Web 2.0?

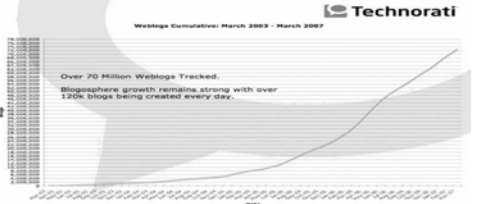
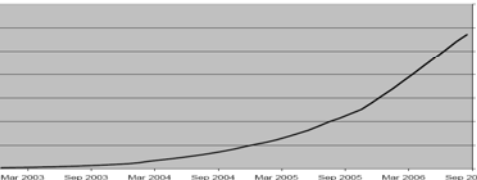
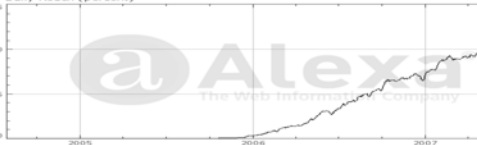
Economist Intelligence Unit (EIU)

Which of these concepts or technologies would you say characterises Web 2.0?
Select all that apply.
(% respondents)



Web 2.0

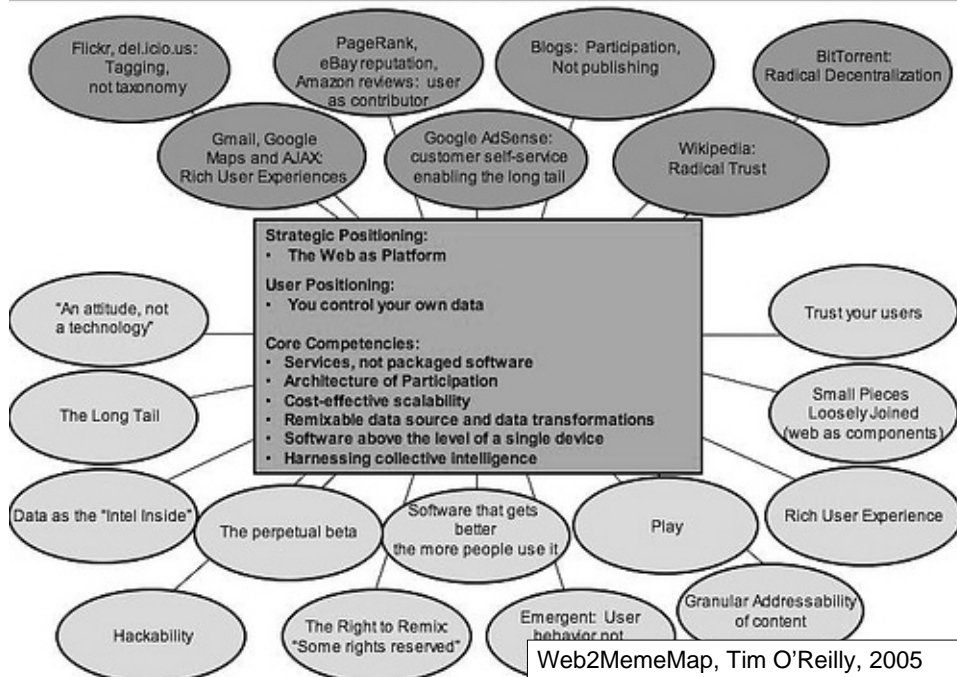


Blogs	70M blogs (March 2007), doubling every 6 months since 2003	
Wiki	Wikipedia 2M articles in the English section, (July 2007), 300,000 authors since 2003	
Social networking	Myspace 100M users, Youtube 100M video views/day, 45% of web users visit those sites (2007)	

Web 2.0 : T. O'Reilly (2004, 2005)

Web 1.0	Web 2.0
DoubleClick :	→ → Google AdSense :
Ofoto :	→ → Flickr :
Akamai : (Head Centric)	→ → BitTorrent : P2P (Long Tail)
mp3.com :	→ → Napster
Britannica :	→ → Wikipedia :
Personal Websites :	→ → Blogging
Directories(Taxonomy) :	→ → Tagging(Folksonomy) :
evite :	→ → Upcomming.org :

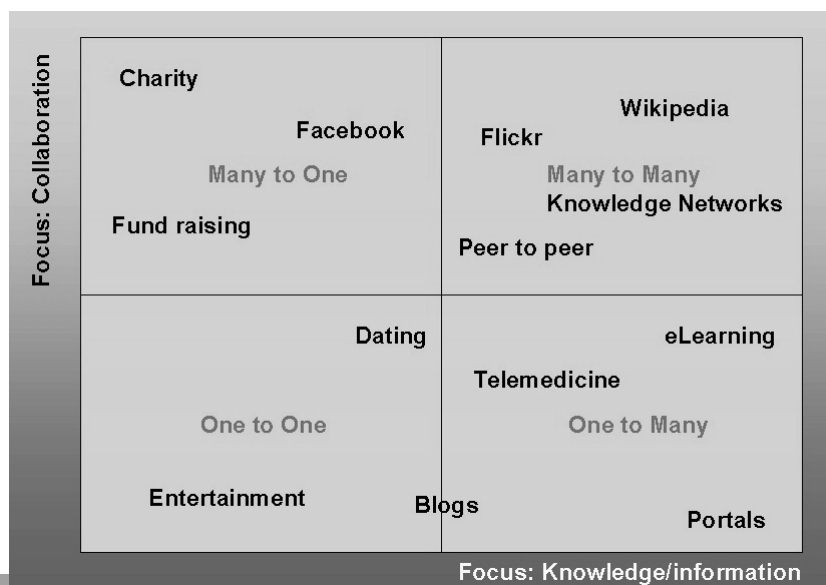
Web 2.0 Meme Map



Web 2.0?

- Collaborative networking: Many to one to many
- Insourcing, outsourcing→crowdsourcing
- Information sharing (Podcasts, RSS feeds)
- Participation in policymaking (Ten Million Imagination Network)
- Social media

Web 2.0 and Patterns of Public Services



Responses to E-government 2.0

Responses to E-government Characteristics	Official	Public	Average
Provision of Opportunity for Interaction	3.31	3.20	3.23
Customized Information and Service	3.19	3.16	3.17
Fast Provision of Info and Service*	3.36	3.13	3.19
Friendly to Multi Media Applications	3.40	3.40	3.40
Information Update	3.47	3.23	3.29
Convenience	3.43	3.28	3.32
Expanding Public Opinion	3.61	3.54	3.56
Interacting with the Public via E-government***	3.32	3.02	3.10
* 10% Level/ *** 1% Level			

Web 2.0 Activities

Level of Blog Activities	2.48
Mobile Internet Access	2.33
Level of Visit to Others' Blog	2.55
RSS Utilization	Yes: 17.1%/ No 76.8%/ DK: 6.1%

Do the Levels of Proactiveness and Level of Technology Matter to E- government Performance?

Data

- **The 2010 National Civic Engagement Data collected by the Institute for Policy and Civic Engagement and the Science, Technology and Environmental Policy Lab of the University of Illinois at Chicago,**

Conventional Approach to Citizen Participation

Variable	N	Mean	SE	Questionnaire
Diss_Conventional	881	3.25	1.32	Hard copy newsletter to disseminate info
	882	3.90	0.89	Newspapers to disseminate info
	884	3.62	1.30	Cable TV to disseminate info
	863	2.60	1.18	Radio to disseminate info
	867	2.85	1.11	Hard copy posters to disseminate info
invi_Conventional (announcing invitation)	750	0.49	0.50	Hard copy newsletter to announce meetings
	784	0.87	0.34	Newspapers to announce meetings
	771	0.69	0.46	Cable TV to announce meetings
	720	0.21	0.41	Radio to announce meetings
	745	0.35	0.48	Hard copy posters to announce meetings
facilitation_Conventional (Frequency)	882	4.29	0.92	Public hearings
	877	4.07	0.92	Community or neighborhood meetings
	868	3.90	1.21	Citizen advisory board meetings
	860	3.07	1.06	Citizen focus groups
	820	2.31	1.30	Citizen telephone hotline
	880	4.27	0.79	Individual face-to-face meetings with citizens
	831	0.21	0.41	Discussion forums

Web 1.0 Approach to Citizen Participation

	N	Mean	SE	
Diss_web1.0	885	4.60	0.71	Web (including online newsletters) to disseminate info
	877	4.08	1.07	Email to disseminate info
	852	2.97	1.35	Bulletin boards to disseminate info
invi_web1.0	793	0.91	0.28	Web (including online newsletters) to announce meetings
	754	0.73	0.44	Email to announce meetings
	720	0.52	0.50	Bulletin boards to announce meetings
facili_web1.0	835	3.25	1.34	Online electronic venues
	826	2.54	1.11	Online polls or surveys
	828	0.07	0.26	Online chats
	874	0.93	0.25	E-mail
	860	0.69	0.46	Online Newsletters
	811	0.23	0.42	Text messaging
	818	0.50	0.50	Web surveys or polls
	790	0.11	0.31	Electronic polling

Web 2.0 Approach to Citizen Participation

	N	Mean	SE	Questionnaire
Diss_web2.0	864	2.76	1.47	Social networking tools (e.g. Twitter, Facebook, LinkedIn) to disseminate info
	844	2.05	1.20	Text messaging (SMS) to disseminate info
invi_web2.0	737	0.35	0.48	Social networking tools (e.g. Twitter, Facebook, LinkedIn) to announce
	716	0.10	0.31	Text messaging (SMS) to announce meetings
facili_web2.0	836	0.18	0.38	Blogs - to facilitate participation?
	680	0.16	0.37	Really simple syndicate - to facilitate participation
	841	0.54	0.50	Social networking sites - to facilitate participation
	792	0.20	0.40	Vodep Sharing sites - to facilitate participation?
	689	0.04	0.21	Wikis - to facilitate participation?

Correlation

Correlation	Diss_Con	Diss_web1	Diss_web2	inv_Con	inv_web1	inv_web2	fac_Con	fac_web1	fac_web2
Diss_Con	1.00								
Diss_web1.0	0.43	1.00							
Diss_web2.0	0.37	0.31	1.00						
invitaaion_Con	0.45	0.23	0.19	1.00					
invitaaion_web1.0	0.18	0.51	0.13	0.41	1.00				
invitaaion_web2.0	0.20	0.14	0.60	0.28	0.24	1.00			
facilitation_Con	0.35	0.37	0.26	0.28	0.28	0.18	1.00		
facilitation_web1.0	0.37	0.42	0.45	0.33	0.37	0.37	0.56	1.00	
facilitation_web2.0	0.27	0.25	0.62	0.17	0.16	0.57	0.25	0.42	1.00

E-government Performance

		N	MIM	MAX	Mean	SD
Internal Process Improvement	Improve governmental decision-making.	882	1	5	3.16	0.944
	Increase opportunity to interact and collaborate with other government officials.	881	1.00	5.00	3.73	0.95
Openness Improvement	Revitalize public debate.	880	1.00	5.00	3.21	0.94
	Distort political information and facts.(-)	874	1.00	5.00	3.30	1.14
	Undermine democratic practices.(-)	865	1.00	5.00	4.15	1.00
	Improve information dissemination to external stakeholders and citizens.	883	1.00	5.00	3.90	0.91
	Enable feedback on service quality.	882	1.00	5.00	3.81	0.91
	Increase conflict with citizens.	874	1.00	5.00	3.77	1.03
Output Improvement	Lead to better policies.	880	1.00	5.00	3.06	0.96
	Increase access to government services.	883	1.00	5.00	3.94	0.90
	Enhance citizen trust of government.	878	1.00	5.00	3.10	1.07

Regression Analyses

		E-gov Outcome-IP		E-gov Outcome-OI		E-gov Outcome-SQ		Total Outcome	
		SB	P-value	SB	P-value	SB	P-value	SB	P-Value
	(Constant)								
Dissemination	Diss_Con	-0.01	0.93	0.04	0.51	0.01	0.93	0.02	0.81
	Diss_web1.0	0.06	0.64	0.05	0.72	0.08	0.56	0.09	0.51
	Diss_web2.0	-0.02	0.96	-0.03	0.93	-0.11	0.73	-0.04	0.90
Invitation	invitaitaion_Con	0.09	0.20	0.15**	0.03	0.05	0.47	0.10	0.16
	invitaitaion_web1.0	-0.10	0.16	-0.09	0.23	-0.10	0.18	-0.11	0.14
	invitaitaion_web2.0	-0.04	0.86	-0.35	0.11	0.17	0.41	-0.04	0.85
Facilitation	facilitation_Con	0.15**	0.02	-0.03	0.67	0.09	0.16	0.07	0.28
	facilitation_web1.0	0.22***	0.01	0.16*	0.08	0.25***	0.00	0.26***	0.00
	facilitation_web2.0	0.13	0.54	0.04	0.86	0.09	0.66	0.12	0.57
Interaction	Diss_web1_web2	-0.07	0.87	0.09	0.82	0.06	0.88	0.00	1.00
	invitaitaion_web1_web2	0.04	0.85	0.22	0.32	-0.21	0.33	-0.02	0.94
	facilitation_web1_web2	-0.09	0.69	0.07	0.77	-0.04	0.85	-0.05	0.82
Control Var.	Bureaucratization_1	-0.04	0.46	-0.16	0.01	-0.04	0.44	-0.08	0.15
	Professionalism	-0.01	0.85	-0.05	0.36	-0.01	0.89	-0.02	0.71

Regression Analyses

		E-gov Outcome-IP		E-gov Outcome-OI		E-gov Outcome-SQ		Total Outcome	
		SB	P-value	SB	P-value	SB	P-value	SB	P-Value
Dissemination	Diss_Con	0.00	0.98		0.30	0.02	0.79	0.03	0.67
	Diss_web1.0	0.08	0.56	0.10	0.47	0.10	0.45	0.12	0.37
	Diss_web2.0	0.01	0.98	0.02	0.95	-0.09	0.79	-0.01	0.97
Invitation	invitaaion_Con	0.10	0.13	0.15**	0.03	0.06	0.37	0.11*	0.10
	invitaaion_web1.0	-0.10	0.20	-0.07	0.34	-0.08	0.27	-0.09	0.22
	invitaaion_web2.0	0.01	0.98	-0.37*	0.09	0.19	0.39	-0.02	0.91
Facilitation	facilitation_Con	0.15**	0.03	-0.07	0.31	0.07	0.28	0.05	0.47
	facilitation_web1.0	0.22**	0.02	0.16*	0.08	0.25***	0.00	0.26***	0.00
	facilitation_web2.0	0.13	0.53	0.09	0.67	0.11	0.59	0.15	0.48
Interaction	Diss_web1_web2	-0.10	0.79	0.02	0.96	0.01	0.97	-0.05	0.89
	invitation_web1_web2	-0.01	0.96	0.24	0.28	-0.23	0.29	-0.04	0.85
	facilitation_web1_web2	-0.07	0.77	0.02	0.93	-0.04	0.85	-0.06	0.80
Control Var.	Bureaucratization_1	-0.03	0.63	-0.16***	0.01	-0.04	0.52	-0.07	0.20
	Professionalism	-0.03	0.56	-0.07	0.20	-0.02	0.67	-0.04	0.44
	logsize	-0.02	0.72	-0.10	0.15	0.01	0.90	-0.04	0.57
	Finance Department	0.03	0.71	0.05	0.48	0.01	0.86	0.04	0.59
	Community Development Department	0.11	0.12	0.06	0.45	0.05	0.45	0.09	0.21
	Parks and Recreation Department	0.09	0.19	-0.05	0.47	0.01	0.91	0.03	0.65
	Police Department	0.15**	0.04	0.08	0.28	0.11	0.12	0.14**	0.05
	Population in 5 categories	0.03	0.63	0.13**	0.03	0.05	0.36	0.07	0.21

Findings

- Proactiveness in Promoting Citizen Participation is more important than the Level of Technology to E-government Performance (Particularly Interactivity/Internal Process Improvement)
- Web 1.0 is significant to E-government Performance
- Web 2.0 is not yet quite critical to E-government Performance
- Web 2.p might be positive to Openness
- More analyses need to be done

Thank You!!!

Questions?

Contact Information

M. Jae Moon

Phone: 82-2-2123-2959

Email: mjmoon@yonsei.ac.kr

The Role that ICT Played in Public Safety Emergency Management ——Take China Weather Emergency Management as an example

Yang, Feng-Chun Mao, Wei^{*}

Abstract

Since the outbreak of "SARS" crisis in 2003, the theory and practice of public safety emergency management had started in China and China government gradually established a general system which took so called "one contingency plan, three systems" as Its core mechanism. This article analyzed the position and role that information and communication technology occupied and played at all stages of this formation of general system. Also this article took China weather emergency management practice as an example to describe the specific and significant role that ICT played. Finally, this article also explained the objectives and plans of China government to improve the existing public safety emergency management.

Keywords: Information Communication Technology Public Safety Emergency Management Weather Emergency Management

^{*} Academy of E-government, Peking University, China

Public safety emergency events refer to those suddenly outbreak public events that government faces in managing national affairs , such as earthquakes, natural disasters, epidemics, terrorist attacks and so on. It falls into four categories: natural disasters, accidents, public health events and social security events. It has three characteristics: abruptness, universality and urgency. First of all, these events happen in a sudden and difficult to predict. Even through information gathering and observations, we can capture some earlier warning information, but it is still difficult to accurately report details of events such as time and place.

Secondly, public safety emergency events affect a wide range of persons and often bring a chain of effects like dominos. It pushes the public safety emergencies to a more complex level .Along with the pace of globalization, public safety emergency events may further affect a wider range of area. It could bring catastrophic destruction to the world. For example, the earthquake and tsunami crisis in Japan in 2011 evolved into nuclear radiation crisis. Furthermore, due to public safety emergency events can't be prevented and controlled in advance, it always make us harder to deal with. In view of such features, it is not difficult to see that if we can't make effective and timely treatment when the emergencies happen, it will not only affect people's lives and interests, but also will cause serious social unrest and threaten the community's trust in government. Public safety emergency management is to establish a public safety emergency response system to enhance crisis response ability and reduce the loss of the crisis. Public safety emergency management is a comprehensive affair that involves multi sectors and disciplines. Information and communication technology has been playing an irreplaceable role in China's Public safety emergency management practice.

I The development of public safety emergency management practice in China

Broadly speaking, since the beginning of human society, public safety emergency events never stop to affect people's lives. To some extent, how to integrate a variety of resources to deal with catastrophic events is an important reason of the birth of government. Before the outbreak of "SARS" crisis in 2003 which sweep not only China but also the whole world, emergency management practice of Chinese governments at all levels stayed in a passive and lack of coordination state. It can be

said that a self-conscious, integrated and institutionalized emergency management practice started since the "SARS" outbreak in 2003. After the "SARS" crisis, China's ruling party and government had decided to strengthen the emergency management structure, mechanism and legal system and made strategic deployment along with working plans. (Xue,L.,Zhang,Q.,Zhong,K.B.,2003)From 2003 to 2008, Chinese government gradually established a general system which took so called "one contingency plan, three systems" as Its core mechanism. Three systems here refer to the emergency management structure, mechanism and legal system.(Chen,Z.M.,2010)

In the year of 2003, public safety emergency management work officially launched. It mainly focused on public health emergency management. Chinese government proposed to establish a public health emergency response mechanism, improve public health services and enhance public health emergency capabilities after "SARS" crisis. And it asked governments at all level to put more attention on unusual management in addition to normal management. In the same year, China's State Council set up a contingency plan working groups, focusing on promoting the preparation of contingency plans and establishment of emergency management institutions, mechanisms and legal system.

In the year of 2004, China's State Council General Office held a meeting about contingency plans in Zhengzhou in March, determined to took the establishment of emergency management system which centered on "one contingency plan, three systems" as the government annual important work. In April, the State Council issued the "State Council guidelines of developing and revising the public emergency contingency plan frameworks"

In May, the State Council issued "provinces (autonomous regions and municipalities) government public emergency contingency plan framework guide."

In the fourth Plenary Session of the 16th Central Committee of the Communist Party of China held in September, it made clear that we should establish a sound social early warning system, form a unified command, functional, responsive and efficient emergency response mechanisms and improve public safety and emergencies handling ability.

In the year of 2005, the State Council issued the "National public emergency contingency general plan" in April. (China State Council, 2005)The State Council issued four major categories of 25 special emergency plans and 80 state council departmental and provincial contingency plans in May and June.

In July, the State Council held a national emergency management meeting and

commanded all levels of government to set up emergency management agencies. In December, the State Council Emergency Management Office was established.

In the year of 2006, March 14, the Fourth Session of the Tenth National People's Congress put the emergency management into national economic and social development plans, the "Eleventh Five-Year Plan" for the first time. In June 15, Xinhua News Agency was authorized to issue the "State Council overall emergency management Work ". In October, the communist party's Sixth Plenary Session adopted the" CPC Central Committee decision on building a socialist harmonious society "clearly states:" To quickly establish a sound social early warning system, establish and improve emergency response mechanisms and social mobilization mechanisms and improve public safety and the ability to handle emergencies. "

In the year of 2007, August 30, the twenty-ninth meeting of the Tenth National People's Congress Standing Committee passed the "People's Republic of China emergency response law" .In addition, the 17th National Congress of China Communist Party report declare that we have to adhere to safety, strengthen safety management and supervision, to effectively eliminate serious accidents, improve emergency event management mechanism.

In the year of 2008, the outbreak of Sichuan earthquake accelerated government emergency management work. In 2008, China Premier Wen Jiabao stated in his government work report "to strengthen emergency response systems and mechanisms to improve the prevention and the ability to handle emergencies: enhancing the ability to study characteristics and patterns of natural disasters under modern conditions, to improve disaster prevention and mitigation capacity ", and take the " further strengthen the emergency management " as one of the important 57 works of State Council in 2008.

China's emergency management system is built around "one contingency plan, three systems". One contingency plan consists of six parts: First, the overall emergency plan; Second, special contingency plans; Third, the state council related department contingency plans; Fourth, local government emergency plan; Fifth, enterprises contingency plans; Sixth, major events contingency plans. The "Three Systems" respectively refers to the management system, operation mechanism and legal system. Emergency management system include centralized command structure; strong social mobilization system; a leading system which take local party committee and government as the principal and relevant departments as coordinators; professional emergency rescue teams; expert consulting team. Operating mechanism

include monitoring and early warning mechanisms, emergency information reporting mechanism, emergency decision-making and coordination mechanism, response mechanism, public communication and mobilization mechanisms, and emergency resource allocation and acquisition mechanisms, incentive mechanisms and social security comprehensive management, urban and rural communities management and so on. The goal of legal system building is to gradually standardized, institutionalized and legalized emergency response system and to improve related laws, rules and regulations.

China's emergency response system focused on the following aspects in recent years: preparation of contingency plans, early warning and monitoring system, emergency command platform, emergency teams and resources construction, emergency education and training system, emergency recovery and reconstruction. (She,L.,Lei,L.P.,2008)Among these aspects, the early warning and monitoring system and emergency command platform building in particular, need not only the support of emergency management theories but also technical support, especially information and communication technology support.

II General and the main systems of public safety emergency management

(A) Contingency plans: from the central to the local

Till the end of 2006, About 1.35 million contingency plans have been developed and all of the provinces (autonomous regions and municipalities), 97.9 percent of the cities and 92.8% of the counties have developed the overall contingency plans. 100% of the central enterprises developed contingency plans. Vast majority of high-risk industries have developed contingency plans. 137,000 times contingency plan exercises had been carried out all over the country. The national contingency plan system has taken initial shape. (Yuan, 2007)

We found out several problems through analyzing our existing contingency plan system, there are:

1, contingency plan system is not yet complete

Although China's central and local governments have developed more than 1.35 million pieces of contingency plans, but in fact the system is not yet complete.

In the state council related department contingency plans, we find eight contingency plans related railway department such as flood contingency plans, devastating earthquake contingency plans, geological disaster contingency plans, fire emergency plans, public health contingency plans and so on. But in January 2008, a big snow storm in southern China had exposed the lack of the railway extreme weather contingency plans. The reason why this happens is because railway department did not foresee emergency events that may occur and they did not pay sufficient attentions on the severity of emergency events. The deeper reason is that we are lack of a scientific risk assessment system and have not integrated risk assessment with the development contingency plans.

2, the content of contingency plan is simple and lack of maneuverability

In China, our contingency plans are kind of like” programmatic” documents or declarations. We can clearly see that the contingency plans generally include the following sections: general principles; organization and command structure and responsibilities; early warning and prevention mechanisms; emergency response; post-disposal; supporting measures; appendix and so on.

Generally speaking, the content of contingency plan is simple and short and hard to operate. But as we all know, the maneuverability is the most important criteria of assessing which is a good contingency plan.

3, lack of cooperation and coordination.

Looking at our contingency plans, we can hardly see cooperation and coordination between departments. Take emergency communications as an example, communication support is really important after emergency events happened. Worse is, communications equipments are easily destroyed during earthquake, nuclear accidents and weather disasters. About communications support, our national earthquake emergency plan stated that telecom companies should restore damaged communications facilities as soon as possible and to ensure smooth communication during emergency time. Our national nuclear emergency plan wrote that the communication needs during nuclear emergency response time should be guaranteed by nuclear emergency response organizations and the nuclear power plant.

When nuclear facilities accidents and other radiological emergency happen, we should take the use of national and local means of communication to make contact. When emergency communication response capacity is insufficient, we could take

temporary emergency measures to solve them if necessary according to the requests. It can be seen from these plans that these descriptions are quite principled and we hardly find any cooperation and coordination between departments here.

In practice, we usually rely on the traditional ways of meeting to discuss response plans when the emergency events happen which will undoubtedly reduce the efficiency to response. In January 2008, China Meteorological Administration held a meeting to response to the 2008 big snow storm emergency events in southern China. Several national departments attend include the State Emergency Management Office and departments of railway, transportation, electricity, civil aviation, safety supervision, civil affairs and so on. And the meeting made appropriate deployment of an emergency-response linkage work. But this working mechanism was not reflected in the China Meteorological Administration major weather disaster contingency plan

4. Formulating process of contingency plan need to be improved.

First, procedures of contingency plan formulating need to be improved. "Emergency Response Law" requires the State to establish a sound system of emergency plans, but does not clearly defined procedures of making them. In practice, the development of contingency plans follows a top-down approach. Under normal circumstances, the State Council departments will develop contingency plans at first. Then the provincial government's relevant department will make corresponding provincial department plans, and municipal level and county level will do the same. In most cases, lower-level authorities in the formulation of contingency plans will simply copy the plans developed by higher authorities, and will not reflect specificity of the region.

Second, joint contingency plans are needed. China has had a lot of contingency plans of various types. Almost all of these plans are made by certain government or enterprises. We could hardly see any joint contingency plans. In January, 2008, for example, if all these telecommunications, electricity, railways, roads, weather, civil affairs, financial and other departments had jointly developed a weather emergency plan to respond to the big snow storm emergency events, emergency response activities would be more efficient and better organized.

5, contingency plan revision procedures are needed

"Emergency Response Law" Article 17, paragraph 4 states that agencies should revise contingency plans based on actual needs and circumstances. But the revision term and procedures are not clearly illustrated. In many contingency plans, we could

only see certain principle provisions. Because of the lack of revision procedures and revision work has not yet attracted departments' attentions. In practice, revision of contingency plan is rare.

(B) The establishment of core emergency leadership bodies (State Council Emergency Management Office)

According to China's State Council Notice on the establishment of the State Council Emergency Management Office (State Council General Duty Office) [2006] No. 32, in order to further strengthen emergency management, fully implement the functions of government, the State Council set up the State Council Emergency Management Office (State Council General Duty Office), to undertake the daily work of the State Emergency Management and the State Council General duty to perform emergency duty, information aggregation and comprehensive coordination function and act as a pivotal center.

Main duties of State Emergency Management Office (State Council General Duty Office)

1, In responsible of the State Council duties work, to grasp and report important situations and dynamics inside and outside of the country, cope with urgent and important matters that are submitted to the State Council, to ensure that the contact channel between the State Council and the provinces (autonomous regions and municipalities) is smooth, to guide government system duties work

2, Implement the State Council decisions and supervise the implementation of the State Council leadership instructions, organize and cope with State Council emergency management conferences, events and documentations.

3, In responsible of coordinating and supervising provinces (autonomous regions and municipalities) Government, the State Council related departments emergency management work, to coordinate and organize relevant state emergency management policies, regulations and proposals proposed by government departments.

4, In responsible for the overall preparation of the national general contingency plans and examine special contingency plans, coordinate and guide emergency plan and emergency structure, mechanism and legal system formulation, to guide the provinces (autonomous regions and municipalities) governments, relevant departments of the State Council work of the emergency system, emergency

information platform construction.

5, Assist the State Council leaders to deal with major public emergencies, coordinate and guide the preventions, early warning, emergency exercise, emergency response, investigation and assessment, information dissemination, emergency support, and international rescue work especially for major public emergencies.

6, To organize and implement research, propaganda and training work, coordinate emergency management international exchanges and cooperation work.

7, Undertake other works assigned by the State Council.

The main services of State Emergency Management Office (State Council General Duty Office)

Mainly deal with related meetings, supervision works, documentations that related to the following business that submitted by the regions and departments of the State Council:

1, involving flood and drought control, disaster relief and major geological disaster, major forest pest injury and grassland fires, sand storms and major ecological disaster, important weather situation and disaster weather forecast and early warning services.

2, involving work safety, transportation safety, environment safety, fire safety and workplace safety handling and prevention services.

3, involving major emergency epidemic disease disposal, major animal epidemic disposal, major food and drug security incident handling and prevention services.

4, involving social security, anti- terrorism, mass incidents and other major public emergencies response and prevention services, foreign related emergencies disposal services.

(C) Public safety emergency management legalization and institutionalization

1, the legalization of public safety emergency management

According to the classification of public safety events, public safety emergency legal system is divided into four categories of natural disasters, accidents, public health event and social security. In addition to the general legislation of "Emergency Response Law of the People's Republic of China" ,there are other several sectoral laws and provisions corresponding to the four categories.(China Central Government

Website,2011)

2, the institutionalization of public safety emergency

State emergency management organization system consists of the leading organ, offices, working unit, local agencies and expert panel.

Leading organ: the State Council is the highest executive public emergencies management leading organ. Under the leadership of the Premier, State Council executive meeting and the State emergencies response and command organization, in responsible of public emergency response management. when necessary, the State will sent a working group to guide relevant work.

Offices: the State Council general office set up the State Emergency Management Office, to perform emergency duty, information aggregation and comprehensive coordination function and act as a pivotal center.

Working unit: according to relevant laws, administrative regulations and their responsibilities, State Council related departments respectively responsible of public emergencies management. Specifically responsible for drafting and implementation of contingency plans, implementing issued decision by the State Council.

Local agencies: local governments are the administrative leading agency for public emergencies management in their administrative district and responsible for public emergency response in the administrative areas.

Expert panel: the State Council and the emergency management agency establish professional talent pool. According to actual needs, they can hire group of experts to provide policy advice for emergency management, if necessary, expert panel can participate in public emergencies response work.

III information and communication technology in China's public safety emergency management practices

Improved technology and management capabilities, especially the widespread use of information and communication technology had greatly increased public safety emergency response capabilities. The important role of information and communication technology is reflected in all stages of, include real-time monitoring data collection and report in daily management of high risk area; In early warning and information release prior to public safety events occurrence; In on scene commander and so on.

(A) 2003

In year 2003, the core work of China Public Safety emergency management practice was fighting against "SARS." In 2003, the epidemic hit China and spread to 24 provinces (autonomous regions and municipalities) in mainland and caused 349 deaths. "SARS" epidemic had spread to 32 countries and regions in the world and 812 people died.

In this public health emergency which last six months and affected so many countries, China government gradually recognize the importance of timely, accurate, open and transparent information reporting mechanisms. The former party secretary of the Chinese Ministry of Health Gao Qiang said in "Study Times" interview that an important lesson we learned in fighting against "SARS" crisis is that the inaccurate information and blocked information transmission."(China News Website, 2009)At the time, we had not applied the territorial management mechanisms in infectious diseases field. Information reported by some local governments was not comprehensive, timely and accurate. Figures Ministry of Health reported officially were summarized based on local government reports. And the figure we reported did not fit in public feelings. Therefore, after the SARS epidemic crisis, in order to address the problem, the Chinese government put efforts on strengthening and improving two aspects of work in public safety emergency management ,these are emergency monitoring and emergency information early warning and collection, analysis, reporting, notification system.

First, build a national public health emergency response command and decision system. Since 2003, the Ministry of Health started planning and construction national public health emergency response platform from the central to the 31 provinces, autonomous regions and municipalities, to ensure that the leaders at all levels and the health sectors can fully grasp the public health emergencies situation and health resources information, to enhance public health emergency response decision-making and rapid response capability. National public health emergency response command and decision system is expected to complete in late 2007. (Office of Health Emergency,2008)

Second, use Internet and information and communication technology to build a network of public health emergencies direct reporting system. Direct reporting of disease information network management mode let China apart from the original mode of information report level by level and form a real-time reporting, real-time

statistics, real-time analysis network, which is a scientific management new mode.

Beijing, Shanghai and other big cities have been initially established public health information network platform and technology platform, formed a multi-dimensional, multi-field integration, interaction, collaboration public health information system, strengthen data exchange and information sharing in disease control, medical treatment and sanitary inspection three systems, improve public health emergency response capabilities.

Such as emergency information systems in Shanghai, It has two network platforms: one is a network platform that connect the city's more than 600 medical and health institutions at all levels and health administrative departments of municipal and district levels. The second one is a network platform that connects municipal and district level health administrative departments, Centers for Disease Control, health supervision stations and major municipal hospitals. Besides, the system also contains four major databases, medical services database, disease control database, health supervision information database and health resources database and four application systems, public health emergency response command and decision support systems, public health monitoring and early warning systems, public health emergency event reporting system, public health emergencies disposition system.(Ren, T.,Qin, X.Y.,Wu, Y.Q.,Li,J.,Hu, Y.H.,2008)

(B) 2004

In May 2004, the State Council general office issued " Overall framework guidance of public emergency contingency plans for the provinces (autonomous regions and municipalities) government ".(State Council General Office,2004)It pointed that to build early warning and forecasting system to support information asses and report work , to build a technology support system for early warning services system, information transmission and feedback should to be efficient and fast, emergency command system should accomplish resource sharing, smooth operation and powerful command. Second, build public emergency rapid response information system to support information sharing and processing.

In the same year, the fourth Plenary Session of the 16th Central Committee of the Communist Party of China held in September clearly pointed that to establish a sound social early warning system, the form a unified command, functional, responsive and efficient operation emergency response mechanism, to improve public safety events protection and handling ability, to establish and improve emergency response

mechanisms, including information collection and auto-summary mechanisms, network emergency command mechanism, resource mobilization mechanisms and social security support mechanism.

(C) 2005

In April, the State Council issued the "National public emergency contingency general plan "(China State Council,2005) in the emergency support part of which states that to establish and improve emergency communications, emergency broadcast and television system, to improve public communication network, to build a combination of wired and wireless, basic and mobile telecommunications emergency communication network to ensure smooth communication, to carry out scientific research in the field of public safety, to increase public safety monitoring, forecasting, early warning, prevention and emergency response technology research and investment, continuously improve the technical equipment, to establish and improve public safety emergency response technology platform, to enhance the technological level of China's public safety, to encourage enterprises to do research in the field of public safety.(Li,X.J.,Yang, Y.Y.,Yuan,S.H.,2005)Emergency Management of Disaster. Beijing: China Social Sciences Press.) In December, the State Council Emergency Management Office was established. One of its important functions is "to guide the provinces (autonomous regions and municipalities) governments, relevant departments of the State Council work of the emergency system, emergency information platform construction."(China's State Council General Office, 2006)

(D) 2006

In 2006, Chinese government published a variety of national science and technology Eleventh Five-Year plans and set up several research programs for technology development and management in public safety emergency management field. In technology development and project implementation aspect, the National Development and Reform Commission and Ministry of Science gave great support for major projects and constructing panning for emergency events. For example, the National Technology Support Program funded technology research and application demonstration of key technology of national emergency platform system. Monitoring and early warning systems and emergency response information systems platforms were built in some areas. For example, National public safety emergency early

warning and information release system belongs to the State Council emergency platform and is one of the major projects of National Construction Plan of Public Safety Emergency system in Eleventh Five-Year.

(E) 2007

"People's Republic of China emergency response law" which adopted in 2007 stated that the State Council should establish a national unified emergency information system. Local governments above county level shall establish or determine the region's emergency unified information system, to collect, store, analyze and transmit emergency information and ensure connection with other emergency information system belongs higher levels of government, lower levels of government and related department, professional institutions and monitoring sites, to enhance cross-sectoral and inter-regional information exchange and intelligence cooperation.

State Council Emergency Management Office announced "national technical requirements for emergency response system platform in September 2007. It clearly states that the state emergency response system platform consists of the State Council, provincial and departmental emergency platforms (including professional emergency command system), and information gathering platform and public information release platform. Emergency platform should include basic support system, integrated applications system, database systems, information report and distribution system, mobile emergency response platform, emergency command site, security and support system and standards system.

(F) 2008

With the occurrence of the big snow storm in southern China and the outbreak of Sichuan earthquake disaster, introspection on the problems of public safety emergency systems aroused. In addition to the contingency plans maneuverability problems, academia began to think deeply about how the system, which cost a lot of financial resources, can break barriers between higher and lower levels or between different departments and regions and truly accomplish multi-sectoral information sharing and coordination.(Shao,J.2010)

IV Case of public safety emergency management based on information and communication technology applications - Weather Emergency Management

Meteorological Department is the most direct emergency management departments for weather disaster, and it also bears with the responsibility of weather support during emergency. Under the influence of global warming, China's extreme weather and major weather events frequently happen and increase more secondary disasters. As one of the function department of government, meteorological departments are taking more and more weather emergency management responsibilities. Weather emergency management work has become increasingly important.

The meteorological departments at all levels has established a "governmental lead, departmental cooperation, social participation" meteorological disaster prevention system. It also has established a weather emergency system to adapt to the weather emergency management mechanism, including monitoring and early warning mechanisms, major incidents reporting mechanisms, information sharing and release mechanism.

(A) Monitoring and early warning mechanism

Monitoring and early warning is critical in meteorological emergency management.

Therefore, to build a meteorological monitoring and early warning mechanisms is quite significant to realize multi-department cooperation. Meteorological department has formed a satellite, radar, meteorological station comprehensive network and fully integrated monitoring resources and greatly enhanced the monitoring capabilities of meteorological disasters. Data exchange network which consists of meteorological and defense, military, marine, water, earthquakes, aviation, aerospace, education and scientific research departments has initially built. And it has realized meteorological data real-time public sharing for free. It has established a relatively complete system of numerical weather prediction system. Inside the meteorological department, a video weather consulting system has greatly guaranteed major weather disaster early warning and public safety emergency weather support services. Meteorological departments cooperate with other departments to jointly issue urban environment forecast, sand storm forecast, geological disasters level, surface precipitation prediction, fire danger weather and marine forecast. And meteorological departments also signed a cooperation contract with Ministry of Health to cooperate in public health emergency response.

(B) Major incidents reporting mechanisms

Based on existing business capacities and communications systems, Meteorological department built a meteorological disaster emergency management information platform. This information platform connected provincial, municipal and county level government and is an important channel of information collection and report inside the department. Meteorological disaster notices and contingency plan activation and meteorological disaster reports are all going up and down by using this platform. In addition, meteorological department will report emergency management information and situation to the State Council through government network.

(C) Information sharing and release mechanism

The mechanism includes multi department and weather warning release mechanism. When weather disaster happens or need to weather emergency support service is needed, meteorological department can provide weather services or jointly delivery information. Now China Meteorological Administration has built information sharing and information exchange mechanism with Ministry of Civil Affairs, Xinhua News Agency and militaries and established mechanisms for jointly delivery weather warning information with Ministry of Industry and Information Technology and the State Administration of Radio Film and Television. China Meteorological Administration send weather message for more than 400 emergency directing leaders in more than 60 departments, meteorological departments provide weather warning short messages services for more 0.62 million emergency decision making staff at all levels for free every day. Meteorological Department is just like a weather warning information tree or a starting gun. Now meteorological departments has preliminarily established a weather disaster early warning information release platform which consists several channels of radio, television, newspaper, telephone, SMS, Internet, electronic display, alarm systems, marine radio and other means of communication and realized disaster warning information release at the first time. More than 1 billion people received weather information services every day. Public weather service coverage has increased significantly.(Li,X.L.,2011)

V Objectives and practice of government to improve the

existing public safety emergency management

(A) Existing problems in public safety emergency management

1, emergency management structure, mechanism and legal system needs to be strengthened

2, emergency rescue system is not complete, emergency rescue and emergency support capacity is relatively weak

3, the study of mechanism and prediction of some major natural disasters was not thorough enough, the use of technology in disaster prevention and mitigation needs greatly improved.

4, urban and rural infrastructure development for disaster prevention and mitigation is lagging behind, emergency response capability yet to be improved.

5, awareness of risk prevention is not strong and public awareness and knowledge of disaster prevention and self-help and mutual aid is not enough.(China News Website, 2009)

(B) How to improve the existing public safety emergency management practices

1, Improve and perfect social mobilization system of emergency management, to adhere to the principle of "party leadership, government responsibility, military and local authority cooperation, social coordination, public participation" , to build crisis management accountability system, to improve social mobilization system and establish a government and community cooperation mechanism.

2, Improve and refine contingency plans. Pay close attention to the preparation of various kinds of "contingency plans operating manual" Through exercises to make manual more scientific and standardize. Put efforts on contingency plans socialization and so that all sectors and levels of social organization can understand and perform their duties when receiving warning notice or facing public safety emergency in accordance with manuals . They can be able to take measures to respond in a timely manner according to procedures, standards and requirements.

3, Establish a full coverage of social crisis early warning release system. In addition to full use of radio, television, newspapers, Internet and other modern media in a timely manner to release early warning information and public disasters

prevention and mitigation measures, but also to establish a effective information release system in case of modern media out of order, to ensure grass-roots organizations and units to start the contingency plan in time and prepare for disaster prevention.

4, Improve emergency management support system. Strengthen the building of emergency supplies reserves. To build a monitoring system for distribution of emergency supplies and to improve emergency supplies production, stockpiling, transfer and distribution system to satisfy emergency response and reconstruction work needs.

5, Strengthen the propaganda and emergency crisis response skills. Keep training and educating community in crisis sense and prevention knowledge, make full use of the Red Cross and other community organizations to carry out emergency management skills training,

Increasingly improve public participation and self-help mutual aid capabilities.

6, Establish a unified and efficient emergency information platform. Integrate existing professional information resources based on unified technical standards, unified identification code, unified interface parameters to achieve interoperability and information sharing. Integrate 119,120,110 and other emergency information platform for receiving emergency report from only one platform and to dispose it through classification and grading.

7, Establish an emergency management evaluation system. Establish and improve the evaluation of public emergency management system is an important part of enhancing capacity and efficiency to respond to public safety emergency. Be able to evaluate public emergency management system each time after crisis and show the success or failure of emergency management in order to improve existing public safety emergency management system based on experiences and suggestions.(People's Website, 2008)

REFERENCES

- Chen,Z.M.(2010) **The Rise of China Emergency Management——Development of Theories and Practices.** *Southeast Academic Research*,1.
- China Central Government Website (2011) <http://www.gov.cn/yjgl/flfg.htm>
- China News Website (2009, Feb 16) **The Former Minister of Health Mr. Gao Qiang Summarized Four aspects of experiences of SARS Crisis.**
- China News Website. (2009, Feb 01) **Mr.Ma Kai: China Public Safety and Emergency Management Work is Facing Severe Situations.**
- China State Council General Office (2004) No.39 **The Notice on Printing Provincial and Municipal Government Public Emergency Contingency Plan Guideline.** from http://www.china.com.cn/guoqing/2011-10/16/content_23639147.htm
- China State Council General Office (2006) State Council Information Work Office.(2006).No.32 **The Notice on Setting up the State Council Emergency Management Office** (State Council General Duty Office).from http://www.gov.cn/gongbao/content/2006/content_320626.htm
- China State Council(2005) **National Public Emergency Contingency General Plan.** From <http://www.china.com.cn/chinese/law/1086058.htm>
from <http://news.sina.com.cn/c/2009-02-16/110817224389.shtml>
from <http://www.chinanews.com/gn/news/2009/02-01/1544067.shtml>
- Li,X.J., Yang, Y.Y., Yuan,S.H.(2005)**Emergency Management of Disaster. Beijing: China Social Sciences Press.**
- Li,X.L.(2011).**Research on China Weather Emergency Management.** Unpublished master dissertation, Peking University, Beijing.
- Office of Health Emergency Center for Public Health Emergency (2008) **China is Building National Public Health Emergency Response Command and Decision System.** from <http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohwsyjbgs/s7860/200804/31358.htm>
- People's Website.(2008,May 27) **Member of the National Committee of CPPCC Mr.Chen Chonghua's Proposal for Improving public Safety Emergency Management System and Mechanism.** from <http://cppcc.people.com.cn/GB/34955/7304682.html>
- Ren, T,Qin, X.Y,Wu, Y.Q,Li,J,Hu, Y.H.(2008) **Discussion about Resources Integration in China Public Health Emergency Management.** *China Public Health Management*,6.
- Shao,J.(2010) **Status Analysis of Emergency Management: Take Wenchuan Earthquake as Example.** *Value Engineering* ,1.
- She,L.,Lei,L.P.(2008)**Thought of Some Theory Problems of Emergency Management for**

- Catastrophes in China.** Wuhan University of Technology (Social Science Edition),4.
- Xue,L.,Zhang,Q.,Zhong,K.B.(2003)**Crisis Management in China: The Challenge of the Transition** .Beijing: Tsinghua University Press.
- Yuan,G.F.(2007,July.22).**State Administration of Work Safety:National Contingency Plan System has been Preliminarily Formed People's Website.from**
<http://news.qq.com/a/20070723/000134.htm>