



Silk Road Disaster Risk Reduction

Peng Cui
Shengnan Wu
Yu Lei

About the Series

This Working Paper Series is a new publication of Integrated Research on Disaster Risk (IRDR), following the decision of the IRDR Scientific Committee in April 2019 to act to 'Expand IRDR Network and Scientific Output' (No. 5 of the IRDR Action Plan 2018-2020).

IRDR is an international scientific programme under co-sponsorship of the International Science Council (ISC) and United Nations Office for Disaster Risk Reduction (UNISDR) and with support from China Association for Science and Technology (CAST) and Chinese Academy of Sciences (CAS). Started in 2010, the Programme has been pioneering in the promoting international and interdisciplinary studies on DRR and has made its contributions through scientific publication and policy papers as well as dialogue toward shaping international agenda in the understanding disaster risks, bridging science and policy gaps and promoting knowledge for actions, all required in the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) and its top priorities. Over time, the scientific agenda of IRDR has attracted many international renowned expertise and institutions. IRDR community is now, institutionally speaking, characterized by its strong Scientific Committee and six thematic working groups, thirteen IRDR national committees (IRDR NCs) and one regional committee (IRDR RC), sixteen international centres of excellence (IRDR ICoEs), a group of some one hundred fifty Young Scientists (IRDR YS) and a broad partnership with national, regional and international institutions working for SFDRR.

This Working Paper Series is thus specially made to facilitate the dissemination of the work of IRDR NCs, ICoEs, YS and institutions and individual experts that IRDR considers relevant to its mission and research agenda, and of important values for much broader range of audience working in DRR domains. As one will notice, all working papers in this series has anchored their relevance and contributions of their work toward SFDRR, IRDR, SDGs and Paris Agreement on climate change. It is the hope of the authors of the working papers and IRDR that this working paper series will not only bring new knowledge, experience and information toward disaster risk reduction, but also helped build better coherence of DRR with the mainstream agenda of UN today toward inclusive, resilient and sustainable human societies.

Team of IRDR-IPO

Silk Road Disaster Risk Reduction

Peng CUI^{*1, 2,3}
Shengnan WU^{1,3}
Yu LEI^{2,3}

¹ Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing 100101, China

² Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610041, China

³ International Coordination Office of Silk Road Disaster Risk Reduction (SiDRR ICO), Chengdu 610041, China

*Corresponding Author: pengcui@imde.ac.cn

Published in 2019 by Integrated Research on Disaster Risk (IRDR), an interdisciplinary body of the International Science Council (ISC).

© IRDR 2019



This publication is available in Open Access under the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International License.

The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of IRDR or the ISC concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The ideas and opinions expressed in this publication are those of the authors; they are not necessarily those of IRDR or the ISC and do not commit the Organizations.

Cover photo: Yu LEI

Design: Fang LIAN

Edit: Qunli HAN, Lucy JONES

Printed by IRDR

Printed in Beijing, China

Citation of this publication: Cui, P., Wu, S., & Lei, Y. (2019). Silk Road Disaster Risk Reduction. *IRDR Working Paper Series*, 15 pages. doi: 10.24948/2019.08

Content

Abstract of this Working Paper	1
Indications of contributions to IRDR Science Plan and UN Agendas	2
Main Text	4
1. Ancient and Modern Silk Road	4
2. Natural Hazards and the Silk Road	5
3. The Challenge and the Opportunity.....	6
4. Regional Response to DRR - SiDRR	8
5. The synergy between SiDRR and the Global Agendas	9
6. Deliverables of SiDRR.....	9
6.1 Atlas of Silk Road Disaster Risk	9
6.2 Education and Talent Cultivation	11
7. Way Forward.....	12
8. References	13
9. Appendix 1: SiDRR and Global Agendas on DRR	14

Abstract of this Working Paper

The Silk Road, starting from the ancient Chinese capital city, is an ancient trade and cultural exchanges route between China and the west and the south for more than two thousand years. It connects over 70 countries and covers an enormous region but with complex natural hazards situation. Further, many countries in this area are less developed countries and facing many challenges in disaster risk reduction and management. There is an urgent need to call for a platform for sharing DRR knowledge and experiences and enhance international cooperation on disaster risk reduction directly targeting the prioritized actions under the Sendai Framework. A solid response was put forward by establishing an international program for the regional actions on disaster risk reduction: SiDRR (Silk Road Disaster Risk Reduction). SiDRR was designed and implemented in 2016 as an international science and technology research program dealing with natural hazards and sustainable development for countries along the Silk Road. The main target of SiDRR is to establish a platform for both researchers and policy-makers working together to search actionable policy for disaster risk research and reduction. Followed by identifying the challenges and opportunities for the Silk Road development, this working paper the described SiDRR regional actions and the deliverables for disasters. With the efforts from SiDRR, the future of a safer and more resilient Silk Road can be envisaged.

Keywords

Disaster risk reduction, Silk Road, Sendai Framework

Indications of contributions to IRDR

Science Plan and UN Agendas

<i>IRDR Sub-objectives</i>	1.1; 2.3
<i>SFDRR targets</i>	Target d; e; f; g
<i>SDGs and/or Climate Goals</i>	SDG Target 3; 4; 11
<i>S/T Roadmap actions</i>	1.2; 1.4

1. How does this study contribute to IRDR research objectives?

SiDRR has worked closely with IRDR since it was first launched. With the mutual interest and shared vision in the field of DRR, SiDRR was nominated as the Flagship Project of IRDR in 2016 which greatly facilitated SiDRR to create its network and platform for scientists and practitioner from the Silk Road region to resolve issues related to natural hazards. For moving forwards, SiDRR will shift from identifying hazards and disaster risk to improving not only the academic excellence but the decision-making by providing scientific-evidenced suggestion for practitioners at risk frontiers.

2. How does this study contribute to SFDRR targets?

The main contributions from SiDRR to SFDRR are around the Priority one and the Priority two. Identifying both the hazards and disaster risks is the main job of SiDRR in terms of academic performance of the SiDRR by studying their mechanism, changes and characteristics. Based on the scientific outcomes, the SiDRR is making efforts on strengthening disaster risk governance to manage disaster risk by providing scientific evidence and suggestion.

3. How does this study contribute to SDGs and the Climate Goal?

Goal 3. Good health and well-being for people: Ensure healthy lives and promote well-being for all at all ages by taking actions on disasters and environmental protections in cities and towns, especially in mountainous areas.

Goal 4. Quality education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, by providing higher education and training opportunities about mountain disaster knowledge for all.

Goal 11. Sustainable cities and communities: providing scientific support to make cities and communities in mountainous areas inclusive, safe, resilient, and sustainable.

4. How does this study contribute to Science & Technology Roadmap Actions?

One of the highlights of the SiDRR is the Atlas on Silk Road Disaster Risk Assessment, which is planned to publish in 2019. It is structured in four parts (110 drawings in A3 size), including the environments and disaster characteristics and typical disaster events in the Silk Road, and the disaster risk assessment from the Silk Road scale to the local scale of some case studies. This atlas aims to provide scientific suggestion for better informed decision-making and supports for decision-makers in the Silk road region during the economic development progress and to minimize the losses due to natural hazards.

Main Text

1. Ancient and Modern Silk Road

Silk Road, also called Silk Route, is an ancient trade and cultural exchanges route between China and the west and the south for more than two thousand years in history between 208 BC to 1453 AC. This route started from the ancient Chinese capital, Chang'an (now Xi'an, Shaanxi); then, it diverged into West and South respectively. It is the only commercial and cultural route, where linked the Four Ancient Civilization: Ancient Mesopotamia, Ancient Egypt, Ancient India (Indus Valley, and the near Aryan Age), and Ancient China. This is a huge area which mainly covered 70 countries and 4.4 billion people (63% of the world). For centuries, this road has attracted the attention of many people, including government officials, scholars, professors and ordinary students, businessmen, tourists. However, the name of the Silk Road was not coined until 1877. The European explorer Marco Polo (1254-1324 CE) traveled on these routes and described them in depth in his famous work but he is not credited with naming them. Later, the name of Silk Road was designated when the German geographer and historian Ferdinand Von Richth Ofen first used 'Seidenstrasse' (Silk Road) or 'Seidenstrassen' (Silk Routes) to describe the trade routes in his book.

In 2015, under the trend of development of economic globalization, China developed the concept of the new Silk Road which would bring countries along the Silk Road to working toward a community with a sustainable developed and shared future. It is carried the spirit of the ancient Silk Road and meant for peace and cooperation, openness and inclusiveness, mutual learning and win-win development.



Figure 1. Ancient and modern Silk Road

2. Natural Hazards and the Silk Road

For centuries, Silk Road has been playing an essential role in connecting the East and the West, and the exchanges of the trades, science technology and civilization. However, the modern silk road situated in different geological and morphological settings. With the increasing number of extreme weathers under global warming, different types of natural hazards occur in these countries. A natural hazard is a major adverse event resulting from the natural process of the earth that can possess a negative impact on people and the environment. The natural hazards expected in BRC can be grouped into four major categories. They are:

- 1) Geophysical: Earthquake, landslide and volcanic activity
- 2) Hydrological: Flood, debris flow and wave action
- 3) Meteorological: Storm, extreme precipitation and fog
- 4) Climatological: Drought, Glacial lake outburst, wildfire

Under the climate change and effect of global warming, these hazards are widely distributed in the silk road region and increasing in frequency and intensity. As a result, natural hazards have led to huge property losses and casualties to the livelihood and put threats on both social development and livelihoods along the Silk Road. Take the China-Pakistan economic corridor as an example, from Kashgar (Xinjiang, China) to Thakot (Northern Pakistan) with a total length of 1036 km, suffered from 56 severe landslides, 155 debris flows, 21 avalanches, two dammed lakes, and 10 large glaciers (Cui et al, 2018).

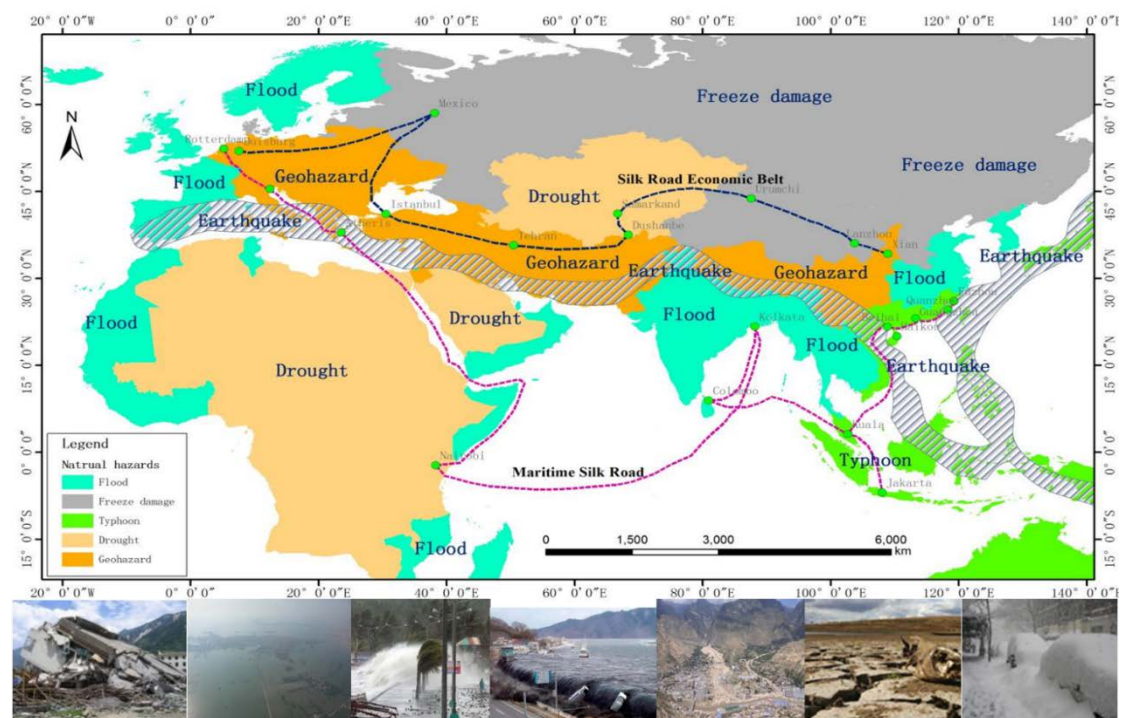


Figure 2. General distribution of natural hazards in the Silk Road region

One particular issue related to silk road countries is that with the increasing magnitude of natural hazards, they sometimes developed into transboundary hazards which affect more than one country. For instance, the Yigong landslide in 2000 in Tibet, China, which raise the water level 55m and formed a dammed lake with a volume of 28 billion m³. The subsequent outburst flood traveled into India and caused thousands of casualties. However, there is currently no proper mechanism existed to deal with such kind of natural hazards effectively.

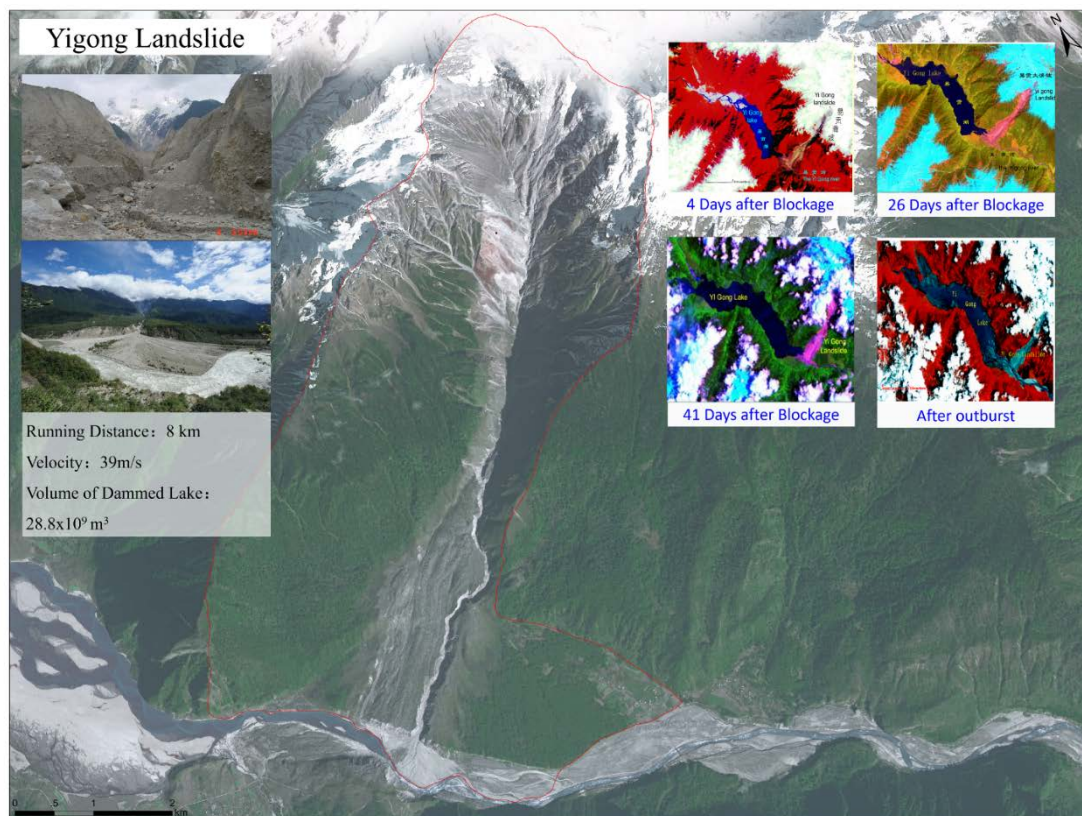


Figure 4. The Yigong Landslide in Tibet, China

3. The Challenge and the Opportunity

The Silk Road connected over 70 countries and covers an enormous region with complex natural hazards situation. Many countries in this area are less developed countries and facing many challenges in disaster risk reduction and management. There is an urgent need to call for a platform for sharing DRR knowledge and experiences and enhance international cooperation on DRR directly targeting the prioritized actions under Sendai Framework for DRR. Challenges and opportunities have been surfaced in the Silk Road DRR and they point the directions towards which the scientists and practitioners should focus (Lei et al, 2018).

Challenge: Lack of a common meteorological and geological background of natural hazards with little shared information along the Silk Road is a major gap.

Opportunity: This situation pushes scientists from all around the world, especially from the countries along the Silk Road are supposed to work together and share strategic information and scientific outcomes about the disasters that have happened, and their characteristic and distribution. Thus, a systematic and large-scale database is in need to be established for effectively collecting and exchanging data.

Challenge: Natural hazards are changing and represent new characteristics in formation, triggering criteria and mobility that were above understanding of present research due to climate change. This variation and new characteristics increase the uncertainties of natural hazards and pose threat to the livelihoods and societies along the Silk Road.

Opportunity: The dynamic trends of disasters are in need to be studied with long term data-sharing and meteorological services. This may improve the accuracy of the early warning system and the prediction of expected climate-related hazards and recognize the trends of hazards in the next few decades.

Challenge: Silk Road area contains more than 70 countries which have the different physical and social condition; thus, it is hard to conduct disaster risk assessment along the Silk Road.

Opportunity: There is a need to conduct risk assessment at the local scale and regional level along the Silk Road where no assessment has been implemented before. The related experiences and knowledge to disaster risk and the physical and social condition of these countries can make contributions to disaster risk assessment and largely benefit to enhance resilience to those countries.

Challenge: Disaster risk assessment methodologies differ from different countries and major challenges of trans-boundary disasters risk assessment and management mechanism need to be dealt with.

Opportunity: In the past ten years, hazard mitigation and disaster risk reduction along the Silk Road area are in varied forms and hazard mitigation and disaster risk assessment have been neither well developed nor standardized. This situation provides opportunities to work on reviewing the distinct mechanism of risk assessment, and acquire good design practices and solution from developed countries. The platform on transboundary disaster management which consists of DRR related professionals and practitioners could be established. Such platform shall emphasize the creating of direct access channel for practitioners from different countries.

4. Regional Response to DRR - SiDRR

With all the challenges brought with the Silk Road development, the recent implementation of global agendas such as Sendai Framework for Disaster Risk Reduction and the Sustainable Development Goals urged the stakeholders to task themselves for DRR and ensure sustainable development. A solid response was put forward by establishing an international program for the regional actions on disaster risk reduction: SiDRR (Silk Road Disaster Risk Reduction). SiDRR was designed and implemented in 2016 as an international science and technology research program dealing with natural hazards and sustainable development for countries along the Silk Road. The main target of SiDRR is to establish a platform for both researchers and policy-makers working together to search actionable policy for disaster risk research and reduction. It not the only emphasis on research collaboration in the Silk Road, but also disseminate existing technologies and experiences in DRR. SiDRR has five clusters which were designed to bring together the vision of silk road development and disaster risk reduction (Figure 5). Through these clusters, it will serve three main objectives as:

- 1) to promote scientific cooperation and establish international coordination mechanism in DRR.
- 2) to identify and predict natural hazards and their risk, improve disaster resilience and reduce the losses.
- 3) to develop and to disseminate new and existing disaster mitigation technology in silk road countries, and to enhance the level of disaster risk governance through education and training.

In line with the five cluster of SiDRR, six working groups have been established to conduct studies in earthquake, ocean and meteorology hazards, geo-hazards, drought and flood, hazards risk analysis and management, and regional risk and mechanisms for joint hazards reduction, for the purpose of disaster risk reduction and management of said hazards and benefiting a large number of country and livelihoods.



Figure 5. Five clusters of SiDRR

5. The synergy between SiDRR and the Global Agendas

United Nations (UN) landed three landmark agreements on DRR and they have been adopted by the UN member states in 2015. These agreements are the Sendai Framework for Disaster Risk Reduction 2015-2030, the Sustainable Development Goals and the Paris Agreement on the Climate Change. The main agenda of the UN landmark frameworks include the reduction of disaster risks and losses of life and property, health and education improvement, and climate change combats for sustainable development.

SiDRR shares the same vision and provides opportunities and resources to the silk road countries for economic and social development in a sustainable way. The main task of reducing natural hazards impact on silk road region complements the priorities for action of the Sendai Framework for DRR and would also help on the implementation of a shared international platform for disaster reduction in BRCs. Therefore, besides all the challenges and opportunities faced, SiDRR can bridge the gap to the Sendai Framework priority actions by sharing some of the framework's goals albeit at a smaller scale and shorter timeframe (Appendix 1).

6. Deliverables of SiDRR

6.1 Atlas of Silk Road Disaster Risk

One of the SiDRR highlights is the Atlas on Disaster Risk Assessment along the Silk Road, which planned to publish in 2019 (Figure 6). This atlas aims to provide scientific suggestion and supports for decision-makers in the silk road region during the economic development progress and to minimize the losses due to natural hazards. It structures in four parts:

Part I: Disaster Environments, which provide background for disaster fostering. Location, lithology, environments, climate and social conditions (Figure 7);

Part II: Distribution and Characteristics of Disasters along the Silk Road, which categorized based on types of disaster, i.e. geo-hazard, ocean disaster, earthquake, flood, drought (Figure 8);

Part III: Typical disaster events along the Silk Road. This is a chapter which SiDRR called contributions from international researchers and practitioner and put together representative disaster case studies for including a description of disaster, causes, impacts, and management (Figure 9);

Part IV: Risk Assessment of Disasters along the Silk Road. To ensure the risk assessment results are reliable, this chapter invited international players from disaster risk assessment field working together to generate risk assessment result for each type of disasters at a different scale as well as integrated risk mapping (Figure 10).

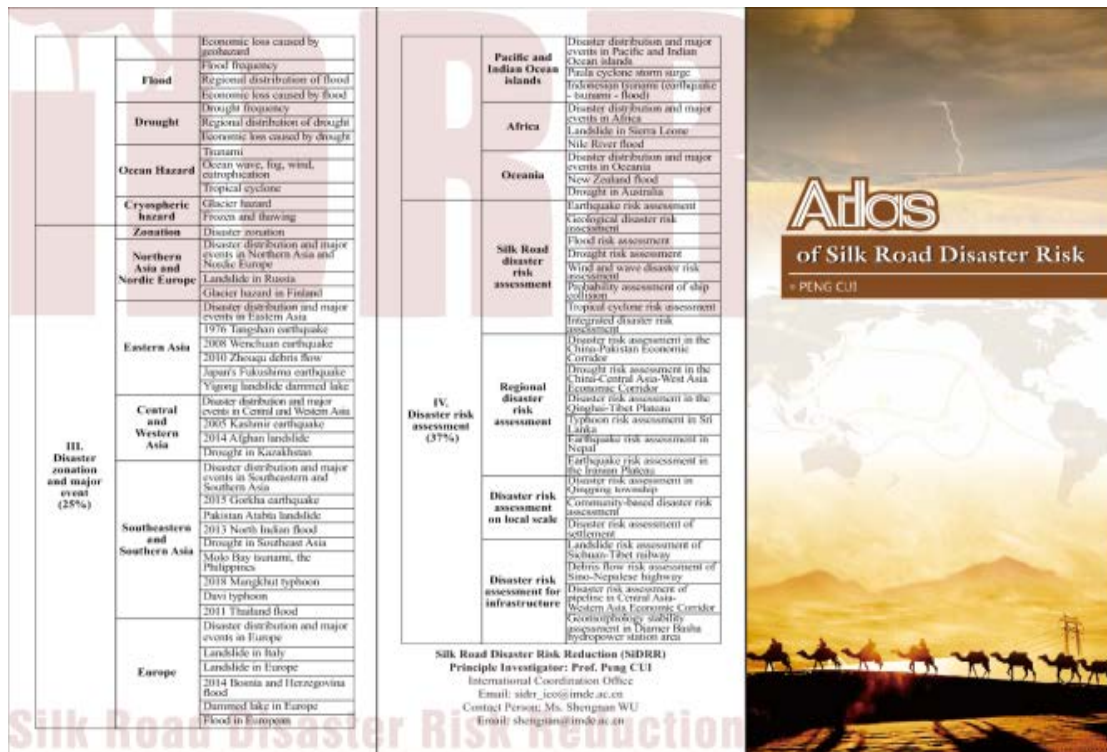


Figure 6. the Atlas on Disaster Risk Assessment

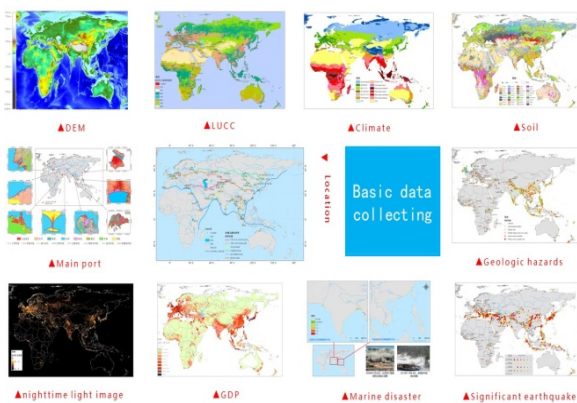


Figure 7. Part I: Disaster Environment

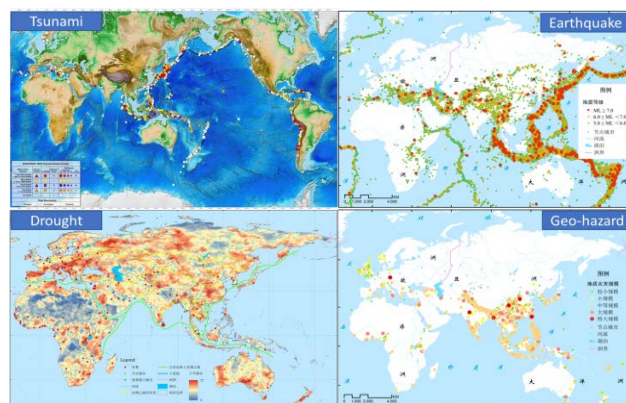


Figure 8. Part II: Distribution and Characteristics of Disasters along the Silk Road

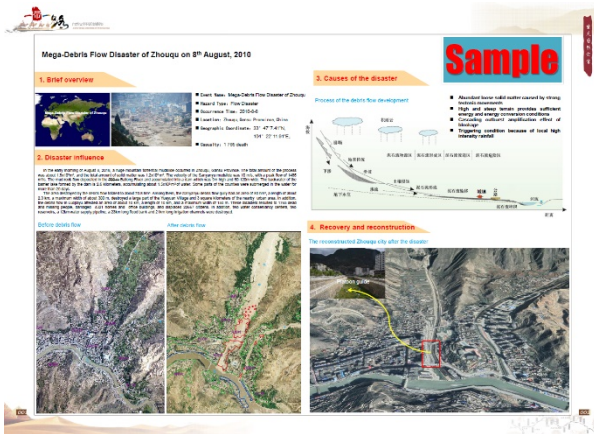


Figure 9. Part III: Typical disaster events along the Silk Road

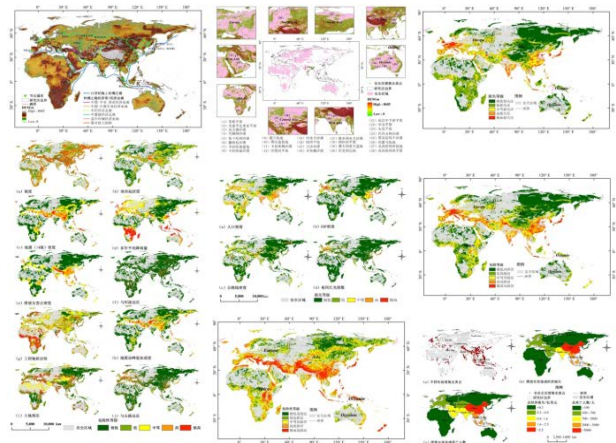


Figure 10. Part IV: Risk Assessment of Disasters along the Silk Road

6.2 Education and Talent Cultivation

International talent cultivation is an important aspect of SiDRR. Since its launch, it has been committed to cultivating students related to disaster research in the Silk Road area. Through the international talent exchange program of the Chinese Academy of Sciences, the project team introduced one postdoc from Pakistan, and rely on SiDRR to recruit 50 students from Pakistan, Nepal, Bangladesh, Iran, Tajikistan, the Philippines, Singapore, Kenya, Guinea, Congo (Kinshasa), Nigeria, Rwanda, and most of the international students have provided SiDRR Scholarship.

SiDRR has initiated and hosted the International Training School on Silk Road Disaster Risk Reduction and Management, which enabled the students to master the basic knowledge and practice methods of disaster risk reduction and management. This training course was designed with two parts: theoretical training and fieldwork. Theoretical training was carried out in Chengdu, taking the centralized teaching method. The course invited 12 well-known experts and scholars from mainland China, Hong Kong and the United Kingdom to train the trainees. Themes main combined with natural hazard characteristics, risk analysis, monitoring and early warning, disaster prevention and mitigation technology, disaster reduction decision-making. Students were exposed with the frontier hotspots, research methods and scientific paper writing in relevant fields. Fieldworks are carried out in the typical demonstration areas of the Wenchuan and Lushan seismic area around Chengdu. The main investigation content is the prevention and control measures of major landslide and debris flow and early warning system and its application in the mountain area. Through this course, it can effectively promote the popularization and application of theory and technology of disaster risk reduction and management in other countries, improve the capacity of disaster risk reduction and

management along the silk road, and support the construction of Silk Road and the safety of people's livelihood.

This course can effectively promote the popularization and application of our theory and technology of disaster risk reduction and management in other countries, improve the capacity of disaster risk reduction and management along the road, and support the construction of Silk Road and the safety of people's livelihood. Till now, the training course was successfully carried out at Institute of Mountain Hazards and Environment in Chengdu, China in 2016 and 2017. 56 international students and early career scientists have participated from more than 10 countries. Through the successful training of the class, some of the students have already applied the skills and experience to the disaster risk reduction and management in their country. For example, after the earthquake in Nepal, Nepalese students came to school and actively participated in the seismic relief and post-seismic secondary mountain disasters prevention and dissemination of local governments and civil organizations. It has made important contributions to the reconstruction and the safety of people after the disaster. Meanwhile the training class has further strengthened the exchange and cooperation between the project team and the students from Nepal and Pakistan. For example, the project team cooperates with the students of Tribhuvan University in Nepal to apply for the International Mountain Center-China National Fund Committee Joint Fund Project, students from Nepal, Pakistan and other countries applied to the Institute of Mountain Hazards and Environment, CAS to continue their studies etc.

7. Way Forward

SiDRR has worked closely with IRDR (Integrated Research on Disaster Risk) since it first launched. IRDR is a decade-long research program co-sponsored by the International Science Council (ISC) and the United Nations Office for Disaster Risk Reduction (UNISDR). It is a global, multi-disciplinary approach to dealing with the challenges brought by disasters, mitigating their impacts, and improving related policy-making mechanisms. With the mutual interest and shared vision in the field of DRR, SiDRR was nominated as the Flagship Project of IRDR in 2016 which greatly facilitated SiDRR to create its network and platform for scientists and practitioner from the Silk Road region to resolve issues related to natural hazards.

Moving forward, SiDRR would shift its focus from the current research on the natural hazard mechanism under climate change and the risk assessment of individual hazards towards the study on the chaining effect of natural hazards as well as the transboundary disaster management. The new focus requires interdisciplinary studies on different types of natural hazards and looking for the threshold of hazard evolvement from one to another. At the same time, dealing with transboundary disaster and development of an operational management mechanism demands a more specific platform which involves not only the policy-makers but also the hands-on practitioner who works at the

community level to create an effective and reliable communication channel for information dissemination between countries potential suffered from transboundary disasters. With the efforts from SiDRR, the future of a safer and more resilient Silk Road can be envisaged.

8. References

- Peng, Cui, et al. (2018). Risks along the Silk Road Economic Belt owing to natural hazards and construction of major projects. *Chinese Science Bulletin*. 63(11):989-997.
- Yu, Lei, et al. (2018). An international program on Silk Road Disaster Risk Reduction-a Belt and Road initiative (2016-2020). *Journal of Mountain Science* 15(7): 1383-1396.
- Mark, J. and Mark, J. (2019). Silk Road. [online] Ancient History Encyclopedia. Available at: https://www.ancient.eu/Silk_Road/ [Accessed 29 Aug. 2018].
- HISTORY. (2019). Silk Road. [online] Available at: <https://www.history.com/topics/silk-road> [Accessed 29 Aug. 2018].

9. Appendix 1: SiDRR and Global Agendas on DRR

Expected Outcomes	What SiDRR Does
<p>1.1 Assess and update the current state of data, scientific and local and indigenous knowledge and technical expertise availability on disaster risks reduction and fill the gaps with new knowledge.</p> <p>1.2 Synthesize, produce and Disseminate scientific evidence in a timely and accessible manner that responds to the knowledge needs of policy-makers and practitioners.</p> <p>1.3 Ensure that scientific data and information support are used in monitoring and reviewing progress towards disaster risk reduction and resilience building.</p> <p>1.4 Build capacity to ensure that all sectors and countries have access to, understand and can use scientific information for better-informed decision-making</p>	<ul style="list-style-type: none"> • SiDRR is set to collect information and data, and develop a regional data sharing platform for both physical and social data related to existing disaster and disaster risk to integrate with Sendai Framework Priority Action 1 and the challenges of the Silk Road disaster risk research. The program also is to develop data sets of natural hazards, reveal temporal and spatial patterns, establish a methodology of risk assessment, and ultimately provide risk assessment maps at various geographical scales along the Silk Road. So far, it has collected an adequate amount of data from various sources and compiled more than 100 thematic maps by establishing a collaborative network with the participation of experts from Nepal, Bangladesh, Singapore and the USA. • Silk Road area contains more than 70 countries. These countries have uneven levels of economic and social development, and different physical condition. The data from each country or each stakeholder may in a different format. Therefore, SiDRR is set to provide standards and protocol in this region for both national and regional level, which will contribute to the efficiency and accuracy of data sharing. Further, terminologies, terms and indicators of disaster data and disaster risk assessment are set to be developed and standardized. • SiDRR is an open and inclusive platform and involves both researchers and practitioners altogether for sharing the experiences and knowledge related to disaster risk reduction and resilience. This platform is set to provide reliable data and experiences related disasters to those who are in need and also a communication tool among scientists, policy-makers and other stakeholders. Social scientists also play an essential role in disaster risk reduction and management. SiDRR not only involves hard science and technology but also include the social dimension of disaster risk and social factors/indicators. This may improve the investment from many stakeholders of investing in disaster risk reduction and management. •
<p>2.1 Support a stronger involvement and use of science to inform policy and decision-making within and across all sectors at all levels</p>	<ul style="list-style-type: none"> • SiDRR International Conference is an excellent chance to promote intergenerational partnership between scientists and other stakeholders affected by disaster risk, and share their wants and needs. The 1st and 2nd SiDRR International Workshop on Disaster Risk Reduction along the Silk Road were successfully held in November of 2016 and July of 2017, in China and Pakistan, respectively; and attracted more than 100 scientists, stakeholders and practitioners from 15 countries, and the delegates from three international organizations (UNESCO, ICIMOD, and IRDR) to attend. In the May 11-12, SiDRR, together with Chinese Academy, UNEP and other co-organizers, is going to host an international conference on Silk-roads Disaster Risk Reduction and Sustainable Development in Beijing. More than 500 scientists, practitioners and students are expected to come.

	<ul style="list-style-type: none"> • Since its establishment, SiDRR is devoted to make efforts in training expertise and personnel and improve their abilities to disaster risk reduction and management. SiDRR has enrolled international students in the University of Chinese Academy of Sciences and organized short training courses on DRR knowledge and techniques for both the young scholars and practitioners in silk road countries.
<p>3.1 Provide scientific evidence to enable decision-making of policy options for investment and development planning</p>	<ul style="list-style-type: none"> • SiDRR is expected to organize international DRR experts to publish the <i>Report of Silk Road Disaster Risk Assessment and Sustainable Development</i> in the year of 2019, which includes risk assessment in the region of Silk Road from three scales: the whole region of the Silk Road, the region within Silk Road based on disaster zonation, and the local scale. This will present the latest disaster research in global, regional, national and local levels, and provide disaster data, results of risk assessment to encounter the challenges in the Silk Road countries. • SiDRR is an interdisciplinary platform for DRR research. It includes not only scientists from natural sciences and also involves experts from other disciplines to share their experiences and knowledge on the social dimension of disasters. Both quantitative and qualitative methodologies and data are included in SiDRR research program. SiDRR is a platform that bridge scientists and policymakers or other practitioners in the field of hazards and disaster risk. SiDRR provides advisory reports for the Chinese government to enable scientific decision making of policy options for policy-makers at both central and local levels for enhancing resilience to natural hazards and capabilities for disaster risk reduction. Up to now, six advisory reports have been accomplished, three of which were commented by the state leaders of the Chinese government and one of which was commented by Governor of Sichuan province. These support disaster risk reduction and enhance this capability for sectors at all levels.
<p>4.1 Identify and respond to the needs of policy- and decisionmakers at all levels for scientific data and information to strengthen preparedness, response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction to reduce losses and impact on the most vulnerable communities and locations.</p>	<ul style="list-style-type: none"> • Early warning is important when disasters occur. Scientifically understanding and assessing the disaster risk can improve and guarantee the accuracy and reliability of early warning system to some extent. Disaster Risk Assessment Report of SiDRR and the Atlas of Disaster Risk of SiDRR are designed to disseminate disaster information and to share practices and experiences of disaster risk and provide evidence for early warning systems. This can promote and improve the capacity of resilience against disaster risk for many stakeholders.