

Analysing the International Organisations and Donors of Humanitarian Aid: A Korean Perspective

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Summary

This study aims to evaluate the status of the partnerships with important international organisations that Korea employs in operating its foreign aid projects from a humanitarian point of view. On the basis of this information, Korea intends to seek ways of effectively supporting underdeveloped countries through future co-operation with these organisations. The main international organisations analysed are the World Food Programme (WFP), the United Nations Children's Fund (UNICEF), the United Nations High Commissioner for Refugees (UNHCR), the World Health Organisation (WHO), the United Nations Development Program (UNDP), the (United Nations) Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), the Food and Agriculture Organisation (FAO), the International Committee of the Red Cross (ICRC) and the Office for the Coordination of Humanitarian Affairs (OCHA). These international organisations support underdeveloped countries through co-operative relationships not only with Korea but also with important donor countries of the OECD. This study focuses on establishing the factors that Korea needs to consider when providing humanitarian aid in the future to underdeveloped countries via such international organisations.

Keywords: humanitarian aid, major international organisations providing humanitarian aid, social network analysis.

1. Introduction

Humanitarian aid is defined as assistance to save human life or alleviate suffering from natural or man-made disasters. The term is used in the sense of total activities that create the minimum conditions under which residents can return to their daily lives as soon as possible following a disaster (Allesina & Dollar; Cingranelli and Pasquarello, 1985; Cole, 2005).

The OECD Development Assistance Committee (DAC) defines humanitarian aid more broadly as 'activities that save lives, alleviate suffering and protect human dignity in emergency situations and thereafter', and the UN Office for the Coordination of Humanitarian Aid (OCHA) defines it as activities to help the victims of natural disasters and conflicts and meet their basic needs and rights.

Today, the demand for international humanitarian aid continues to increase, owing to prolonged local conflicts and natural disasters caused by climate change (Kim, 2011; Stephen and Swiss, 2013). As of 2021, it is estimated that around 235 million people worldwide need humanitarian aid, which means that one in 33 people in the world needs help. The United Nations and its affiliates aimed to support 160 million people in 56 countries in 2021 (https://www.koica.go.kr/sites/koica_kr/index.do), which they estimate will cost \$35 billion. In addition, the global epidemic of Covid-19, which started in 2020, is causing shock-waves throughout the international community, and in particular, countries that are subject to development co-operation and are in need of international support are being pushed into a more serious situation of underdevelopment and poverty. Recently, the scale of ODA has increased, the actors of multilateral

co-operation are gradually diversifying, and earmarked funding for specific-purpose projects delivered through international organisations is expanding.

The proportion of multilateral aid making up OECD DAC member countries' total ODA is around 28 per cent; multilateral co-operation involving international organisations increases every year, constituting 44 per cent of total ODA provided via multilateral organisations (https://www.koica.go.kr/sites/koica_kr/index.do). Multilateral organisations, including UN-affiliated international organisations, have strong expertise in each field and strong local networks, making it easier to conduct international co-operation.

As a result, multilateral co-operation is emerging as an important tool in countries that are politically unstable, such as conflict-vulnerable countries, where direct support is difficult.

In May 2016, eighteen donor countries, sixteen UN aid agencies and a number of international NGOs including the International

Red Cross and Red Crescent improved their humanitarian aid provision in accordance with the international community's common goals and commitment to enhance the effectiveness and efficiency of humanitarian aid. They were agreed on the principle of the Grand Bargain for humanitarian action.

In addition, the international community established the Humanitarian Aid–Development–Peace Nexus (HDP Nexus), and in February 2019 used this as a comprehensive framework for implementation by the international community, including OECD DAC members, of humanitarian aid, development and peace activities in conflict and vulnerable situations. The Nexus is based on the recognition that the three sectors *humanitarian aid*, *development* and *peace* are organically connected, and that the links between them must be strengthened in order to effectively respond to various crises that are intensifying (https://www.koica.go.kr/sites/koica_kr/index.do). The OECD DAC Recommendation on the HDP Nexus not only includes the main contents of SDG implementation for organising and implementing the programme, but also humanitarian aid, crisis pre-

vention for vulnerable and conflict-affected countries, capacity building, and learning. It is recommended that when carrying out international development co-operation projects, priorities of prevention, mediation and peace-building should be set whenever possible.

Against this background, this study analyses the characteristics of the relationship between the donor countries that provide humanitarian aid, the number of which is increasing, and the international organisations that these donors use to provide such aid.

2. Theoretical Discussion

Korea is also participating in international efforts to cope with humanitarian crises, and as the scale of humanitarian aid is expanding, it is necessary to prepare and respond to the changing environment and increasing humanitarian demand, and to prepare strategic co-operation plans to increase development effectiveness (Choi & Kim, 2019; Berthelemy and Tichit, 2004; Khan, 2004).

The basic direction of the Korean Government's humanitarian aid provision, according to the Ministry of Foreign Affairs' Strategic Document, is to maximise the value for money of humanitarian aid by focusing on each sector individually and by strengthening the linkage between humanitarian aid, development and peace (https://www.koica.go.kr/sites/koica_kr/index.do). For this purpose we are providing priority support to vulnerable persons, such as children, women and refugees, who need priority consideration; responding to the most urgent needs such as for food and health measures; and providing support for resilience and capacity building through education, vocational training and livelihood support. In addition, in areas where HDP Nexus operation is possible, support is being promoted to meet humanitarian crises in conflict-affected and vulnerable countries, and alleviate large-scale disasters: not only emergency relief, but also preventive efforts through disaster-risk reduction and resilience strengthening (Collier and Dollar, 2001; Knack, 2001; Koo and Ramirez, 2009). Since capacity-building on the part of the recipient country is essential for reducing the demand for humanitarian aid, it specifies that the recipient coun-

try and local organisations will support the enhancement of ownership and capacity building, and provide custom-built support in consideration of the local environment (Taveres, 2002; Wotipka et al., 2008; Xuan, 2019; Alesina and Weder, 2002)..

In the third Comprehensive Basic Plan for International Development Cooperation 2021–25 (Joint Ministries 2021), the expertise of each of the five major UN key co-operation organisations (WHO, UNICEF, WFP,

UNDP and UNHCR) is put forward with the aim of strengthening co-operation with international organisations (https://www.koica.go.kr/sites/koica_kr/index.do). As well as specifying the strengthening of strategic co-operation, the Plan also states that Korea will strive to expand its support as an exemplary member of the international community, and emphasises the expansion of co-operation with the WHO and other health-specialised organisations in terms of responding to global infectious diseases. In addition, bearing in mind the expertise and the project execution capabilities of each organisation, it is planned to establish strategic co-operative relationships and to participate in international efforts to respond to the economic and social impacts caused by the spread of Covid-19. As part of these efforts, a plan was established to strengthen co-operation with the global health council so as to enhance the international community's ability to respond to infectious diseases and develop and disseminate diagnostic and therapeutic agents and vaccines. For the purposes of more effective multilateral co-operation with international organisations, the multilateral co-operation strategy has been revised, so that its implementation can be planned on the basis of it, and plans implemented which will gradually supplement performance management measures and co-operation strategies for each organisation.

3. Survey Design

3.1 Analysis targets: countries and international organisations

The countries analysed in this study represent 27 member countries of the OECD DAC. The international organisations analysed include the World Food Program (WFP), the United Nations Children's Fund (UNICEF), the United Nations High Commissione

r for Refugees (UNHCR) and the World Health Organisation (WHO), the United Nations Development Programme (UNDP), the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), the Food and Agriculture Organisation (FAO), the International Committee of the Red Cross (ICRC) and the Office for the Coordination of Humanitarian Affairs (OCHA).

3.2 Analysis period

The main analysis period of this study is 2015–19. However, where there is a special need data from 2010–19 are also used.

3.3 Analysis method

In this study, social network analysis is used to understand the relationship between major donor countries and international organisations. A social network is a set of actors connected by one or more relationship types. In social networks, the first important component is the actor and the second is the relationship. Novel network data is defined by these two concepts. By studying the behaviours of interconnected actors in social networks, it is possible to explain specific outcomes in terms of behavioural patterns that influence each other to produce those outcomes. In this study, since the actors in the form of international organisations and the state actors are mutually related through aid, it is helpful to understand the relationships between actors when analysing using the social network method. In order to analyse the network relationships between actors, the Netminer program, a piece of software specifically designed for analysing social networks, is used.

3.4 Data

The data to be used in this study concerns, first, the amount of projects performed by major international organisations and the types of humanitarian aid projects. Table 1 shows the achievements that important international organisations made in each area when humanitarian aid projects were divided into three areas between 2015 and 2019.

It indicates that the early response area occupies 73 per cent of the total, followed by disaster preparedness at around 20 per cent. The remaining 8 per cent is for reconstruction relief.

Table 1 International organisations' share of humanitarian aid by type (2015–2019) (unit: USD million)

	emergency	reconstruction	disaster	Total
WFP	884.53	101.46	64.79	1050.79
UNICEF	431.18	0.00	75.29	506.47
UNHCR	2608.50	2.13	0.00	2610.62
WHO	100.69	0.00	275.16	375.86
UNDP	6.16	99.77	142.96	248.90
UNRWA	294.77	0.00	0.00	294.77
FAO	4.24	3.73	43.68	51.65
Others	11106.91	1389.82	3579.37	16076.10
합계	15436.99	1596.92	4181.25	21215.16
비율	0.73	0.08	0.20	1.00

Source: OECD DAC.

Secondly, data is used to analyse what international organisations major donor countries used to carry out humanitarian aid projects. According to the classification of the OECD DAC, humanitarian aid project types are divided into three types: emergency relief, reconstruction relief, and disaster prevention and preparedness, using country-specific data. The amount of humanitarian aid projects by donor country for the three types is shown in Table 2.

Table 2 Size of donor countries providing emergency relief (unit: USD million)

YEAR	2015–2019									
구분	WFP	UNICEF	UNHCR	WHO	UNDP	UNRWA	FAO	ICRC	OCHA	Others
Australia	96.19	5.32	68.81	0.00	57.04	65.16	0.00	67.85	20.87	271.33
Austria	19.21	8.45	23.18	0.56	0.00	3.40	2.49	38.65	3.33	47.65
Belgium	100.26	36.37	68.34	0.00	34.00	28.55	38.76	73.52	208.02	167.35
Canada	833.06	293.69	359.84	11.93	20.22	23.13	17.07	186.85	66.70	704.36
Czech Republic	2.44	1.94	10.15	0.00	0.46	0.35	0.00	1.74	0.44	15.41
Denmark	126.32	59.17	153.90	2.25	84.73	14.52	4.50	15.08	84.80	700.08
Finland	77.58	9.55	55.94	3.51	0.00	1.17	1.17	10.26	0.00	104.56
France	6.37	1.92	1.50	0.46	3.91	1.97	0.08	8.28	19.69	298.23
Germany	2527.55	316.88	1546.75	79.14	295.82	200.71	13.22	539.25	527.76	1013.92
Greece	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.34	30.95
Hungary	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.06	0.00	7.96
Iceland	3.31	1.79	1.02	0.00	0.00	0.83	0.00	0.16	1.66	9.30
Ireland	33.90	22.93	31.10	2.24	35.56	12.41	4.03	49.03	44.65	221.58
Italy	70.21	41.18	61.66	13.30	3.27	15.88	8.55	39.56	12.97	486.29
Japan	636.55	430.20	560.87	6.51	128.83	171.00	0.75	75.17	31.14	540.38
Korea	127.17	26.96	70.49	9.15	6.85	4.57	1.47	11.65	11.21	69.59
Luxembourg	36.23	1.18	38.22	1.38	7.33	0.00	0.00	29.66	13.40	62.06

Netherlands	109.34	48.46	53.58	3.60	99.59	2.86	0.00	185.05	257.28	316.43
New Zealand	7.57	1.43	8.59	0.99	0.57	0.00	0.34	28.41	0.71	24.64
Norway	254.00	153.57	255.18	54.59	51.83	55.87	41.21	7.29	123.79	794.92
Poland	4.24	4.33	4.45	0.00	0.00	0.68	0.00	2.72	3.15	107.51
Portugal	0.28	0.13	0.83	0.24	0.04	0.00	0.00	0.48	0.24	35.24
Slovak Republic	0.00	0.11	0.04	0.00	0.00	0.00	0.00	0.05	0.12	2.69
Slovenia	0.42	0.28	0.40	0.00	0.00	0.31	0.00	0.32	0.05	4.21
Spain	26.72	9.20	29.12	1.99	1.70	5.30	0.06	29.65	30.32	89.27
Sweden	129.49	181.76	147.65	11.20	95.19	39.27	24.00	159.91	357.60	534.95
Switzerland	290.13	18.53	61.23	1.04	39.84	4.98	2.71	451.95	79.94	209.48
United Kingdom	1951.77	825.38	532.89	65.52	368.01	120.42	62.28	386.42	751.85	1767.58
United States	9072.87	1844.53	7444.00	354.05	57.65	1230.73	164.42	1397.29	277.57	8617.84
TOTAL	16543.18	4348.02	11589.78	623.64	1392.43	2004.06	387.10	3796.33	2929.59	17255.77

Source: OECD DAC

The Table 3 shows the size of donor countries providing disaster relief to the recipient countries.

Table 3 Size of donor countries providing disaster relief (unit: **USD million**)

YEAR	2015–2019									
	WFP	UNICE F	UNHC R	WHO	UND P	UNRW A	FAO	ICRC	OCH A	Others
Australia	7.06	4.31	0.00	0.73	0.08	0.00	0.00	0.00	0.00	24.68
Austria	0.00	0.00	0.00	0.00	6.99	0.00	0.00	0.00	0.00	1.06
Belgium	0.00	6.00	0.00	0.00	9.26	0.00	0.00	5.59	0.00	4.54
Canada	0.00	0.60	0.00	0.00	8.77	0.00	0.96	0.00	0.00	19.26
Czech Republic	0.00	0.44	1.94	0.00	0.00	0.42	0.00	0.79	0.00	10.81
Denmark	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	51.81
Finland	0.00	0.00	0.00	0.00	11.15	0.00	0.00	0.00	0.00	10.68
France	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	107.02
Germany	54.80	744.41	8.74	0.00	266.27	114.84	6.24	0.00	0.00	897.37
Greece	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hungary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.78
Iceland	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.22
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
Italy	0.11	0.00	0.51	0.57	9.25	1.99	0.00	0.00	0.00	43.22
Japan	7.61	11.74	5.50	0.00	27.19	0.00	0.46	9.17	0.00	246.40
Korea	0.60	1.85	3.45	0.52	20.52	0.00	0.50	0.00	0.00	7.43
Luxembourg	0.79	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	10.55
Netherlands	0.00	1.88	0.23	0.00	0.00	0.00	0.00	0.00	0.00	182.13
New Zealand	0.00	0.00	0.00	0.00	2.95	0.00	0.00	0.00	0.00	18.10

Norway	0.00	0.88	0.00	2.04	62.61	2.10	0.12	0.00	0.00	22.90
Poland	0.00	0.00	0.00	0.00	2.27	0.00	0.00	0.00	0.00	2.42
Portugal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
Slovak Republic	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.49
Slovenia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.34
Spain	0.00	0.58	0.41	0.09	0.00	0.00	0.00	0.00	0.00	11.22
Sweden	0.00	0.00	2.19	0.00	4.23	0.00	20.39	11.07	0.00	35.92
Switzerland	0.00	0.15	2.26	0.00	5.00	1.07	0.00	0.02	2.65	16.41
United Kingdom	20.44	13.10	8.50	0.00	4.72	0.00	17.20	30.02	1.96	192.15
United States	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
TOTAL	91.41	785.93	36.60	4.29	441.98	120.64	45.87	56.77	4.61	1927.04

Source: OECD DAC

The table below shows the size of donor countries providing disaster prevention and preparedness to the recipient countries.

Table 4 Size of donor countries providing disaster prevention and preparedness (unit: **USD million**)

YEAR	2015–2019									
	WFP	UNICE F	UNHC R	WHO	UND P	UNRW A	FA O	ICR C	OCH A	Others
Australia	2.30	1.02	0.00	0.50	15.11	0.00	0.00	0.35	0.76	50.37
Austria	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.84
Belgium	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.15
Canada	5.00	0.00	0.00	0.81	1.39	0.00	1.54	0.00	0.04	47.40
Czech Republic	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.08
Denmark	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	6.07
Finland	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	5.30
France	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	9.48
Germany	25.31	1.73	0.33	12.14	0.00	0.00	1.17	0.00	0.61	166.33
Greece	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hungary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Iceland	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.08	0.19
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	10.65
Italy	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	12.11
Japan	0.52	1.18	0.00	0.00	32.89	0.00	0.00	0.00	0.00	218.41
Korea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.27
Luxembourg	1.81	0.00	1.87	0.00	4.16	0.00	0.00	0.72	0.00	7.10
Netherlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	3.85
New Zealand	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.10	15.47
Norway	5.84	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	45.50

Poland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
Portugal	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.17	0.32
Slovak Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Slovenia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77
Spain	0.00	0.12	0.00	0.09	0.00	0.00	0.00	0.00	0.00	5.69
Sweden	30.29	0.00	0.00	0.00	11.25	0.00	3.19	0.00	0.00	14.34
Switzerland	3.73	2.44	0.11	0.00	6.77	0.00	2.05	0.00	2.27	59.64
United Kingdom	34.94	13.73	0.63	40.23	6.97	0.00	16.9 4	19.29	26.28	339.82
United States	36.60	12.58	0.00	2.23	3.93	0.00	19.3 8	0.00	30.29	448.24
TOTAL	147.79	32.78	2.95	57.37	84.92	0.00	44.2 7	21.14	60.71	1538.6 6

Source: OECD DAC.

4. Analysis of Social Networks between Donor Countries and International Humanitarian

Aid Organisations

4.1 Analysis of international organisation relations: three areas

Although three types of humanitarian aid programme are being implemented by international organisations, nine international organisations are principally addressed in this study (WFP, UNICEF, UNHCR, WHO, UNDP, UNRWA, FAO, ICRC and OCHA).

ICRC and OCHA are not included in the data for international organisations carrying out humanitarian aid projects in the OECD DAC because of the data collection problem. Figure 1 shows the degree to which international organisations are involved in the three humanitarian aid project areas. As can be seen, the area with the largest node size is emergency relief, followed by disaster prevention and preparedness and reconstruction relief.

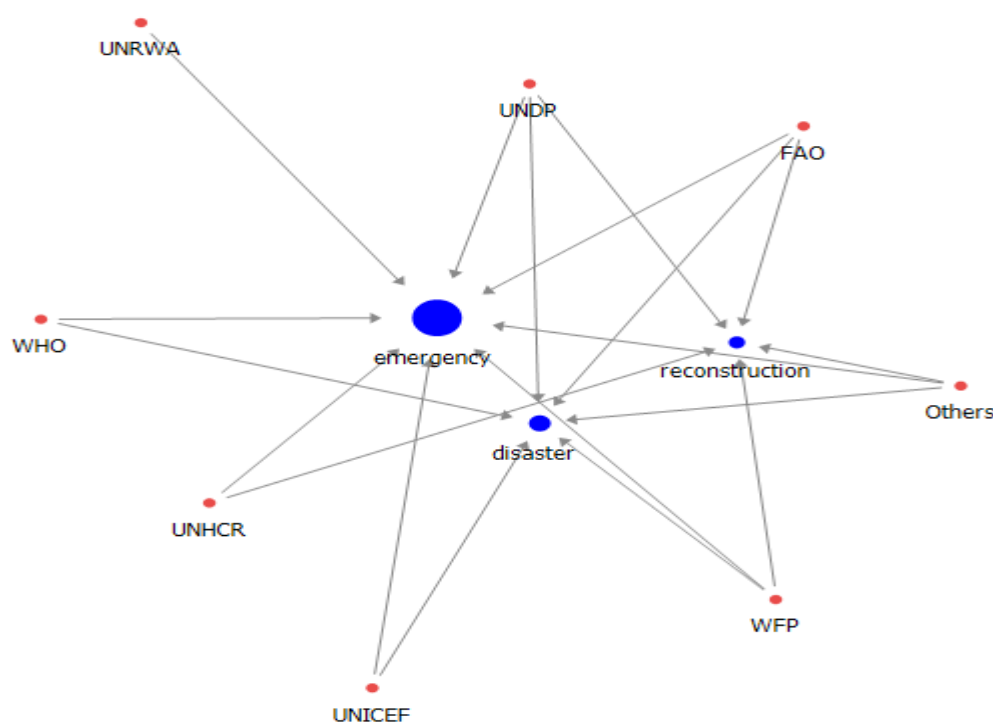


Figure 1 Network of international organisations in all three areas of humanitarian aid

Using the PFnet function, the figure is abbreviated, and a new skeleton-oriented network that leaves only relatively important nodes is deduced, as shown in Figure 2. The abbreviated network helps us to identify important entities because the three domains

are doing business in large and small relationships with each international organisation, but only relatively large links are left.

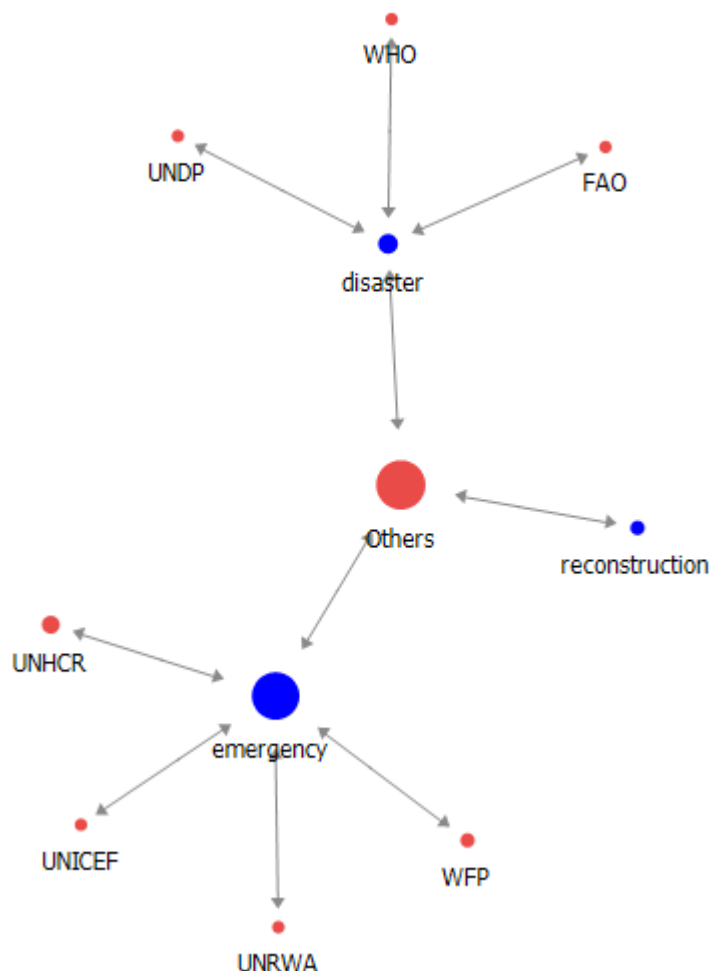


Figure 2 Network of international organisations in all three areas of humanitarian aid (abbreviated network)

As can be seen from the abbreviated network shown in Figure 2, other organisations (Others) are the largest in the area of emergency response, followed by organisations such as UNHCR, WFP, UNRWA and UNICEF which play an important role. It can be seen that other organisations in the area of reconstruction and relief, and organisations such as UNDP, FAO and WHO in the area of disaster prevention and preparedness, have relatively more important relationships within the network. Below, we look at this in more detail.

When looking at the degree centrality score for all humanitarian aid project areas, we see that emergency relief is the largest, followed by disaster prevention and preparedness and reconstruction relief. Table 5 presents the connection centrality score for each humanitarian aid project area and the connection centrality score of the international organisations. The connection centrality score is divided into in-degree centrality and out-degree centrality. (Introvert centrality refers to a case in which the outside enters the self, and

extrovert centrality to a case in which the self goes outward.) As Table 5 shows, most **organisations** came into the emergency

response area, and reconstruction relief is relatively small.

Table 5 Connection centrality score by humanitarian aid project area

		1	2
		Degree Centrality	Degree Centrality
1	emergency	1,543.698000	0.000000
2	disaster	418.125000	0.000000
3	reconstruction	159.691000	0.000000
4	Others	0.000000	1,607.610000
5	FAO	0.000000	5.165000
6	UNRWA	0.000000	29.477000
7	UNDP	0.000000	24.889000
8	WHO	0.000000	37.585000
9	UNHCR	0.000000	261.063000
10	UNICEF	0.000000	50.647000
11	WFP	0.000000	105.078000

On the other hand, as Table 6 shows, when looking at the connection centrality score for each international organisation, we see that the connection centrality score of other institutions is the highest. Among international organisations, the category represented by

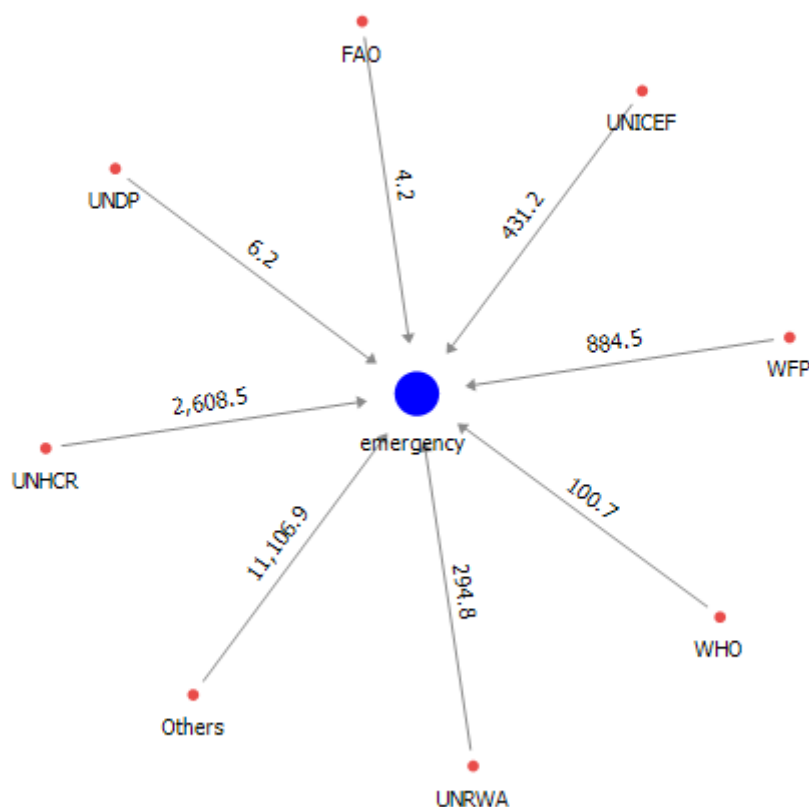
Other organisations appears to have carried out the greatest number of humanitarian aid projects, but the actual largest organisation among the subjects of this study is UNHCR, followed by WFP and UNICEF.

Table 6 Connection centrality score by international humanitarian organisation

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	Others	0.000000	1,607.610000
2	UNHCR	0.000000	261.063000
3	WFP	0.000000	105.078000
4	UNICEF	0.000000	50.647000
5	WHO	0.000000	37.585000
6	UNRWA	0.000000	29.477000
7	UNDP	0.000000	24.889000
8	FAO	0.000000	5.165000
9	disaster	418.125000	0.000000
10	reconstruction	159.691000	0.000000
11	emergency	1,543.698000	0.000000

Next, we will try to process the three areas individually. First, in the case of emergency

relief, the international organisations that carry out the most projects are a combination of Other organisations.



Note: The figure above the link is in millions of dollars.

Figure 3 Degree of connection to international organisations in the emergency relief area

Using the figures shown in Figure 3, we can summarise the business scales of international organisations (Table 7).

Table 7 International organisations in the emergency relief area (unit: million dollars)

Rank	Organisation	Project size	Remarks
1	Others	11,106.9	
2	UNHCR	2,608.5	
3	WFP	884.5	
4	UNICEP	431.2	
5	UNRWA	294.8	
6	WHO	100.7	
7	UNDP	6.2	
8	FAO	4.2	

On the other hand, in the case of reconstruction aid, as Figure 4 shows, it is the largest international organisations that are

ranked, such as WFP, UNDP and FAO, except for Others.

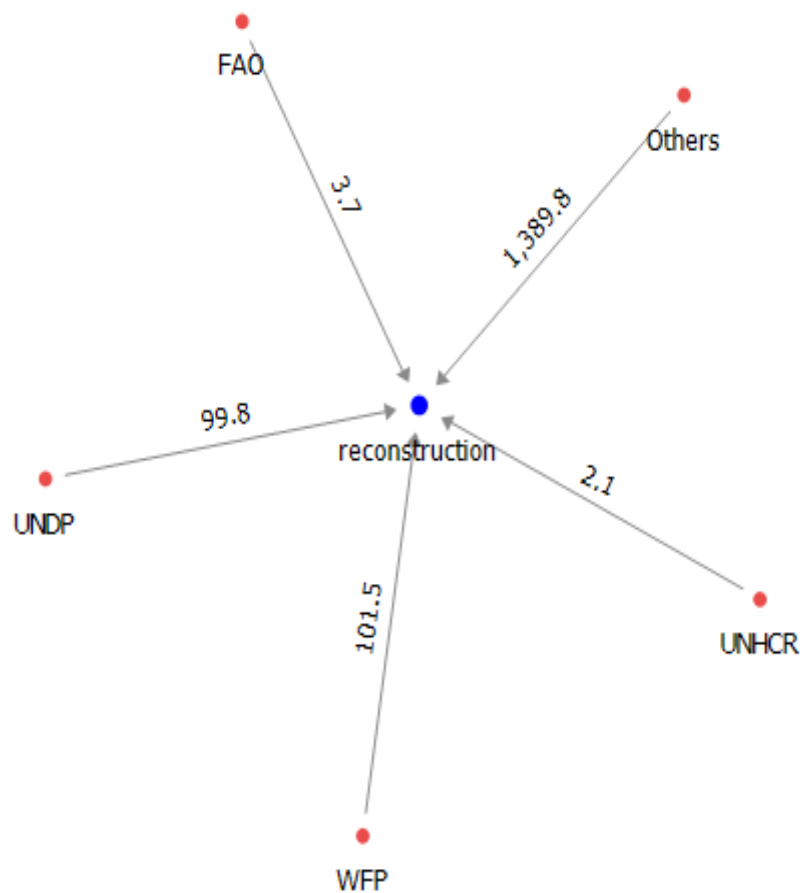


Figure 4 Degree of connection to international organisations in the reconstruction and relief area

As Table 8 shows, in the case of reconstruction relief, excluding Others, WFP is the largest, followed by UNDP, etc.

Table 8 International organisations in the reconstruction and relief area

Rank	Organisation	Project size	Remarks
1	Others	1,398.8	
2	WFP	101.5	
3	UNDP	99.8	
4	FAO	3.7	
5	UNHCR	2.1	

On the other hand, in the field of disaster prevention and preparedness, in reality WHO is the largest, followed by UNDP and UNICEF.

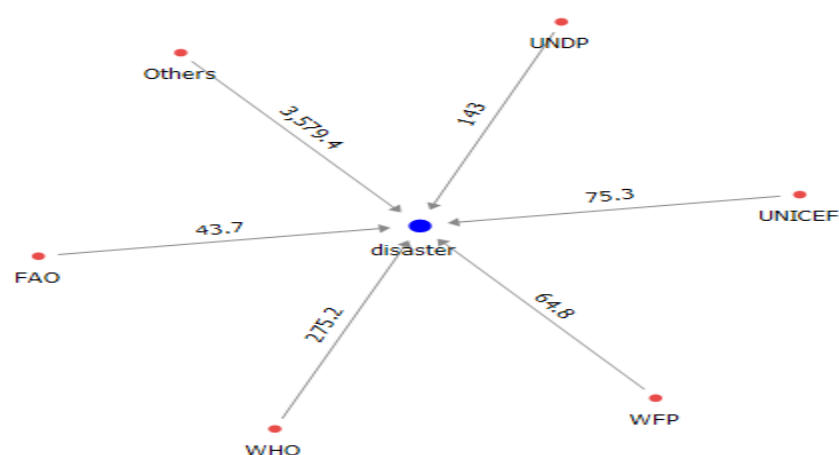


Figure 5 Degree of connection with international organisations in the area of disaster prevention and preparedness

Table 9 International organisations in the field of disaster prevention and preparedness

Rank	Organisation	Project size	Remarks
1	Others	3,579.4	
2	WHO	275.2	
3	UNDP	143	
4	UNICEF	75.3	
5	WFP	64.8	
6	FAO	43.7	

4.2 Network between international organisations and donor countries by specific areas of humanitarian aid

Looking at the rankings of international organisations working in the area of

emergency relief, we see that they are linked to the rankings of WFP, UNHCR and UNICEF. It can be said that the higher the connection centrality score, the greater the number of Other businesses.

Table 10 International organisations' connection centrality scores in the emergency relief area

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	Others	454.098947	0.000000
2	WFP	435.346842	0.000000
3	UNHCR	304.993421	0.000000
4	UNICEF	114.421053	0.000000
5	ICRC	99.902895	0.000000
6	OCHA	77.094737	0.000000
7	UNRWA	52.738684	0.000000
8	UNDP	36.643158	0.000000
9	WHO	16.411842	0.000000
10	FAO	10.187105	0.000000

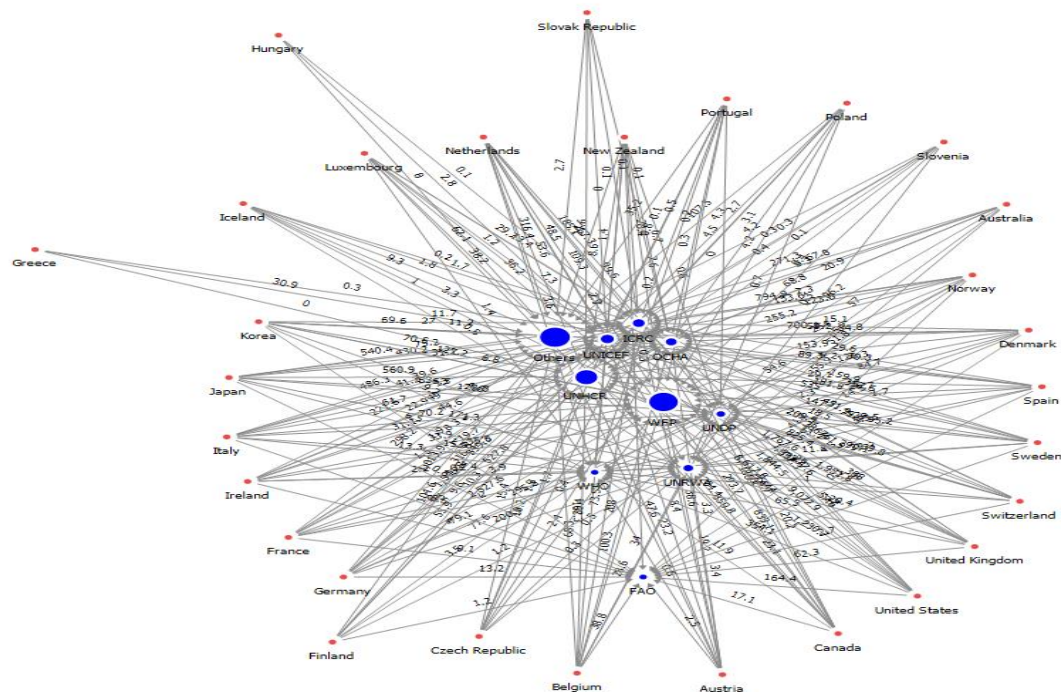
Table 11 shows the level of donor donations in the area of emergency relief. The United States has the highest degree of connection centrality in the area of emergency relief, and Korea ranks sixteenth.

Table 11 Donor connection centrality scores in the emergency relief area

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	United States	0.000000	801.603947
2	Germany	0.000000	185.815789
3	United Kingdom	0.000000	179.792632
4	Japan	0.000000	67.931579
5	Canada	0.000000	66.232895
6	Norway	0.000000	47.164474
7	Sweden	0.000000	44.237368
8	Denmark	0.000000	32.772368
9	Switzerland	0.000000	30.521842
10	Netherlands	0.000000	28.320789
11	Belgium	0.000000	19.872895
12	Italy	0.000000	19.812368
13	Australia	0.000000	17.172895
14	Ireland	0.000000	12.037632
15	France	0.000000	9.010789
16	Korea	0.000000	8.923947
17	Finland	0.000000	6.940526
18	Spain	0.000000	5.877105
19	Luxembourg	0.000000	4.985789
20	Austria	0.000000	3.866316
21	Poland	0.000000	3.344211
22	New Zealand	0.000000	1.927632
23	Portugal	0.000000	0.986316
24	Czech Republic	0.000000	0.866579
25	Greece	0.000000	0.823947
26	Iceland	0.000000	0.475526
27	Hungary	0.000000	0.283684
28	Slovenia	0.000000	0.157632
29	Slovak Republic	0.000000	0.079211

Meanwhile, Figure 6 shows the relationship between international organisations and donor countries in the area of emergency relief,

expressed as a score.



Note: Blue nodes are international organisations.

Figure 6 Degree of connection between international organisations and donors in the emergency relief area

processing of networks including complex connectivity scores. This is an abbreviated diagram that leaves important links alive and shows only the skeleton, which helps to simplify understanding of the network.

On the other hand, Figure 7 shows a simplified network, abbreviated in order to simplify the

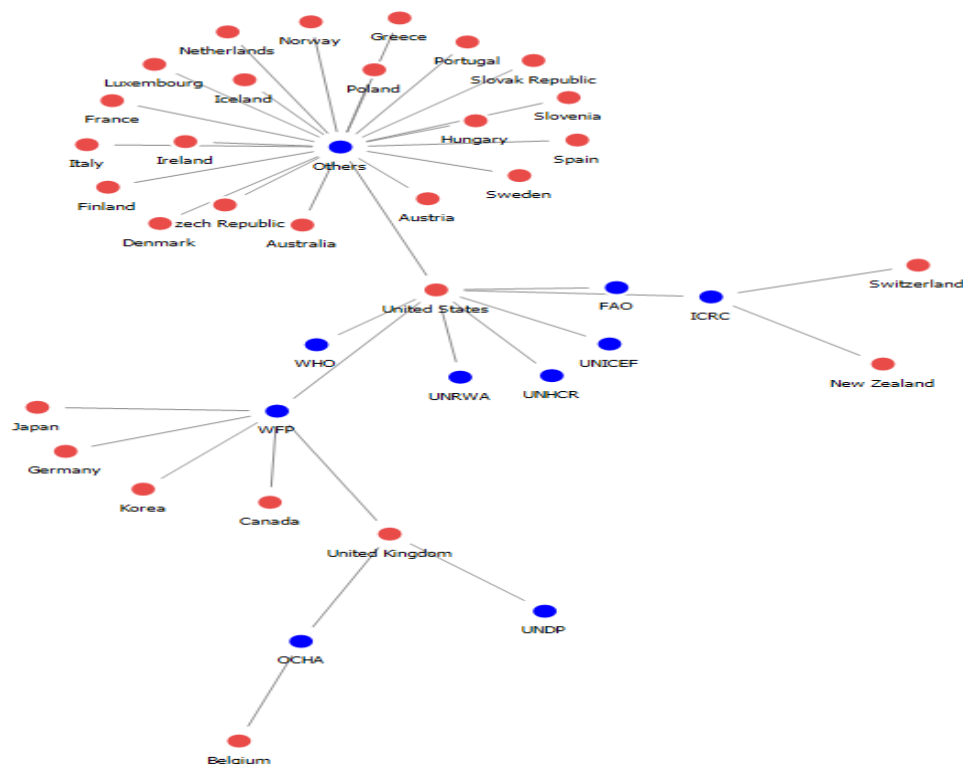


Figure 7 Simplified network in emergency relief are

Table 12 shows with which international organisations the major comparator countries have important relations in the field of emergency relief.

Table 12 Utilisation of representative international organisations by major countries in the field of emergency relief

	Organisation	Remarks
USA	Others, WHO, UNRWA, UNHCR, UNICEF, FAO, ICRC	
UK	UNDP, OCHA, WFP	
Germany	WFP	
Japan	WFP	
Sweden	Others	
Norway	Others	
Korea	WFP	

Looking at the rankings of international organisations working in the field of reconstruction and relief, we observe that they

are linked to the rankings of UNICEF, UNDP and UNRWA.

Table 13 International organisations' connection centrality scores in the reconstruction and relief area

		1	2
		Degree Centralit	Degree Centra
1	Others	50.711579	0.000000
2	UNICEF	20.682632	0.000000
3	UNDP	11.631316	0.000000
4	UNRWA	3.174474	0.000000
5	WFP	2.405526	0.000000
6	ICRC	1.493684	0.000000
7	FAO	1.207105	0.000000
8	UNHCR	0.963158	0.000000
9	OCHA	0.121316	0.000000
10	WHO	0.113158	0.000000

Table 14 shows the level of donations by donors in the area of reconstruction aid. Germany has the highest degree of connection centrality, and Korea ranks eleventh.

Table 14 Donor countries' connectivity centrality scores in the reconstruction and relief area

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	Germany	0.000000	55.070263
2	Japan	0.000000	8.107105
3	United Kingdom	0.000000	7.581316
4	Netherlands	0.000000	4.848421
5	France	0.000000	2.820789
6	Norway	0.000000	2.385526
7	Sweden	0.000000	1.942105
8	Italy	0.000000	1.464474
9	Denmark	0.000000	1.382632
10	Australia	0.000000	0.970000
11	Korea	0.000000	0.917632
12	Canada	0.000000	0.778684
13	Switzerland	0.000000	0.725263
14	Belgium	0.000000	0.668158
15	Finland	0.000000	0.574474
16	New Zealand	0.000000	0.553947
17	Czech Republic	0.000000	0.378947
18	Luxembourg	0.000000	0.373947
19	Spain	0.000000	0.323684
20	Austria	0.000000	0.211842
21	Hungary	0.000000	0.178421
22	Poland	0.000000	0.123421
23	Portugal	0.000000	0.041316
24	Ireland	0.000000	0.036579
25	Slovak Republic	0.000000	0.017632
26	Slovenia	0.000000	0.011579
27	Iceland	0.000000	0.011316
28	United States	0.000000	0.004474
29	Greece	0.000000	0.000000

Figure 8 shows the relationship between international organisations and donors in the area of reconstruction and relief, expressed as a score.

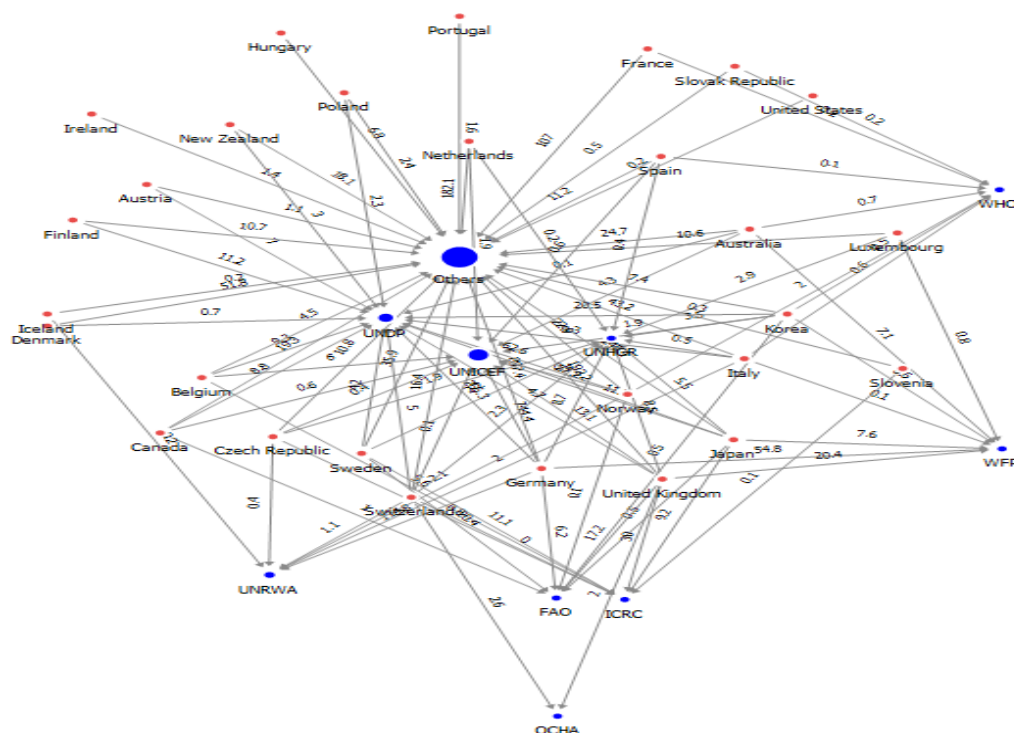


Figure 8 Degree of connection between international organisations and donors in the field of reconstruction and relief

Figure 9 shows a simplified network, abbreviated so as to simplify the processing of networks with complex connectivity scores.

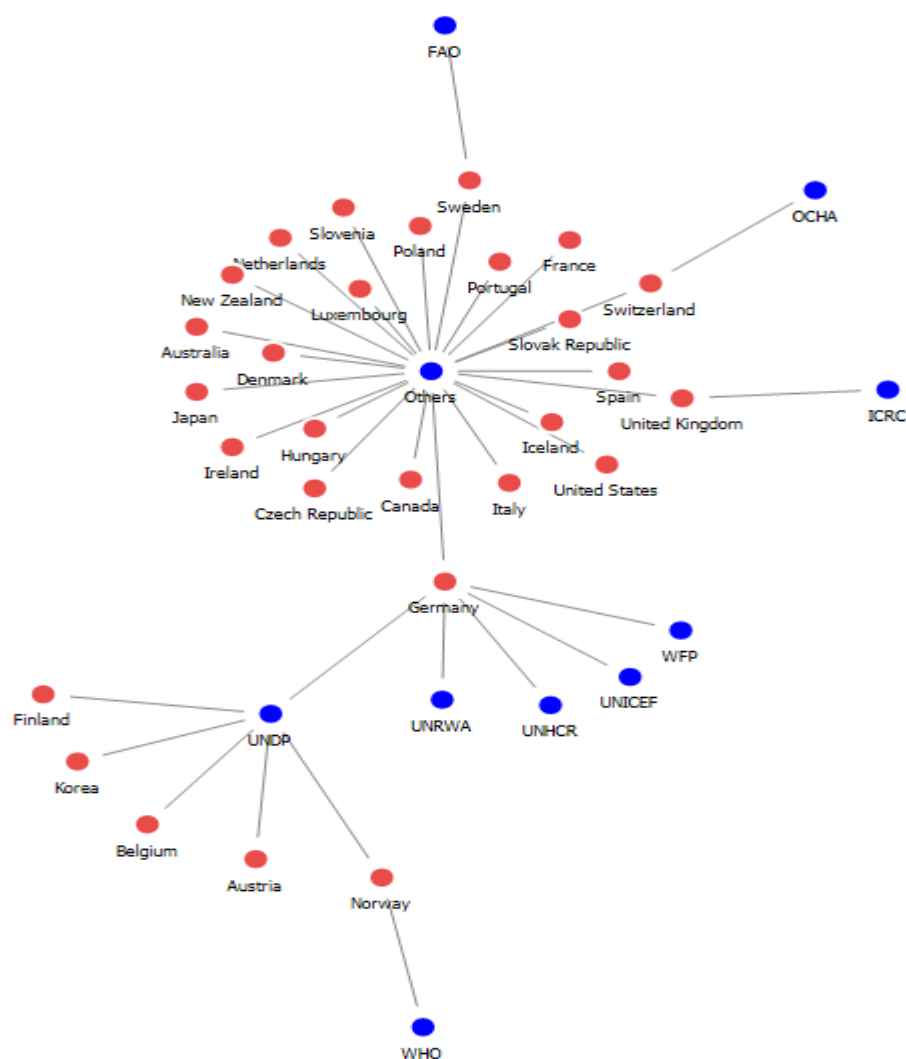


Figure 9 Simplified network in reconstruction relief area

Table 15 shows which international organisations are most closely related to the major comparator countries in the area of reconstruction aid.

Table 15 Utilisation of representative international organisations by major countries in the field of reconstruction and relief

	Organisation	Remarks
USA	Others	Other organisation
UK	ICRC, Others	
Germany	Others, UNDP, UNRWA, UNHCR, UNICEF, WFP	
Japan	Others	
Sweden	FAO, Others	
Norway	UNDP	
Korea	UNDP	

Looking at the rankings of international organisations active in the field of disaster

prevention and preparedness, we see that they are linked to the rankings of WFP, UNDP and OCHA.

Table 16 International organisations' connection centrality scores in the area of disaster prevention and preparedness

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	Others	40.491053	0.000000
2	WFP	3.889211	0.000000
3	UNDP	2.235263	0.000000
4	OCHA	1.597895	0.000000
5	WHO	1.509474	0.000000
6	FAO	1.165000	0.000000
7	UNICEF	0.863158	0.000000
8	ICRC	0.556579	0.000000
9	UNHCR	0.077368	0.000000

Table 17 shows the donor's contribution level in the area of disaster prevention and preparedness. The United States has the highest degree of connection centrality, and Korea ranks tenth.

Table 17 Donor countries' connectivity centrality scores in the disaster prevention and preparedness domain

		1	2
		In-Degree Centrality	Out-Degree Centrality
1	United States	0.000000	14.559211
2	United Kingdom	0.000000	13.127105
3	Japan	0.000000	6.657895
4	Germany	0.000000	5.463684
5	Switzerland	0.000000	2.026579
6	Australia	0.000000	1.852895
7	Sweden	0.000000	1.554474
8	Canada	0.000000	1.478421
9	Norway	0.000000	1.372895
10	Korea	0.000000	1.191316
11	Belgium	0.000000	0.542105
12	New Zealand	0.000000	0.420000
13	Luxembourg	0.000000	0.412105
14	Italy	0.000000	0.327632
15	Ireland	0.000000	0.283421
16	France	0.000000	0.274737
17	Denmark	0.000000	0.172368
18	Finland	0.000000	0.157105
19	Spain	0.000000	0.155263
20	Austria	0.000000	0.153684
21	Netherlands	0.000000	0.122105
22	Czech Republic	0.000000	0.028684
23	Slovenia	0.000000	0.020263
24	Portugal	0.000000	0.013158
25	Iceland	0.000000	0.010789
26	Poland	0.000000	0.006842
27	Hungary	0.000000	0.000263
28	Slovak Republic	0.000000	0.000000
29	Greece	0.000000	0.000000

Figure 10 shows the relationship between international organisations and donors in the area of disaster prevention and preparedness, expressed as a score.

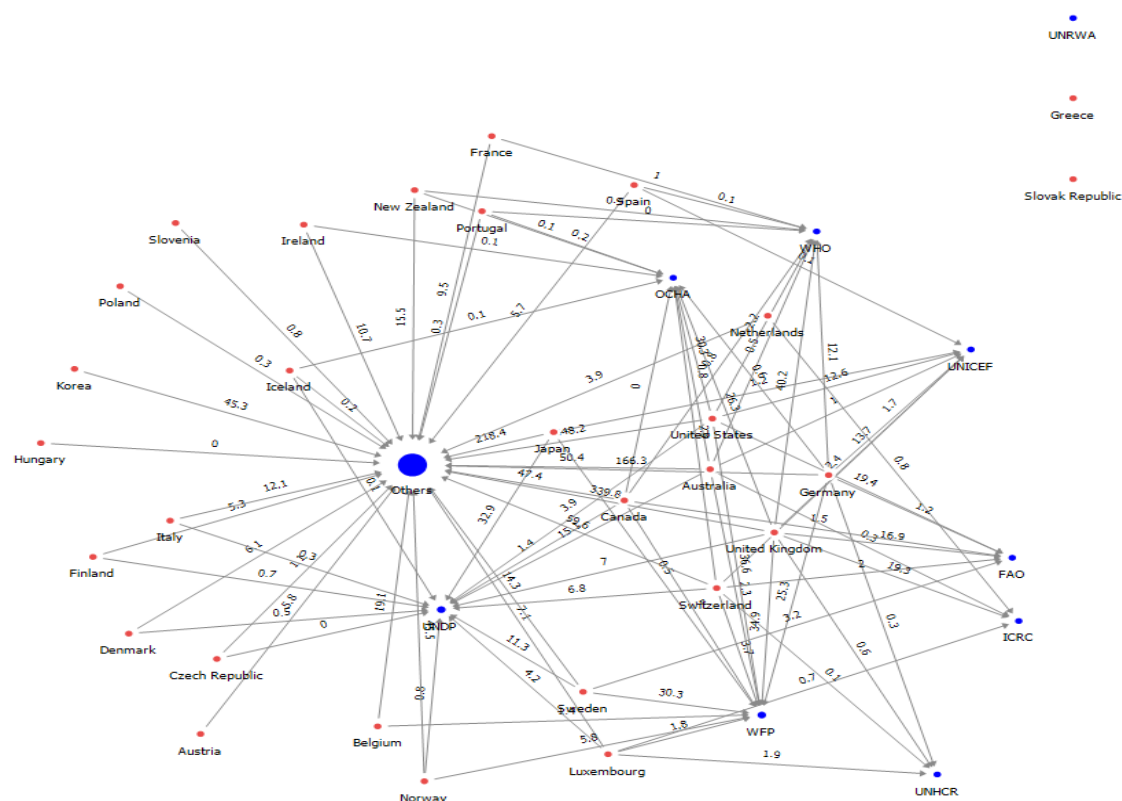


Figure 10 Score on the degree of connectivity between international organisations and donors in the field of disaster prevention and preparedness

Figure 11 shows a simplified network, abbreviated to simplify the processing of networks with complex connectivity scores.

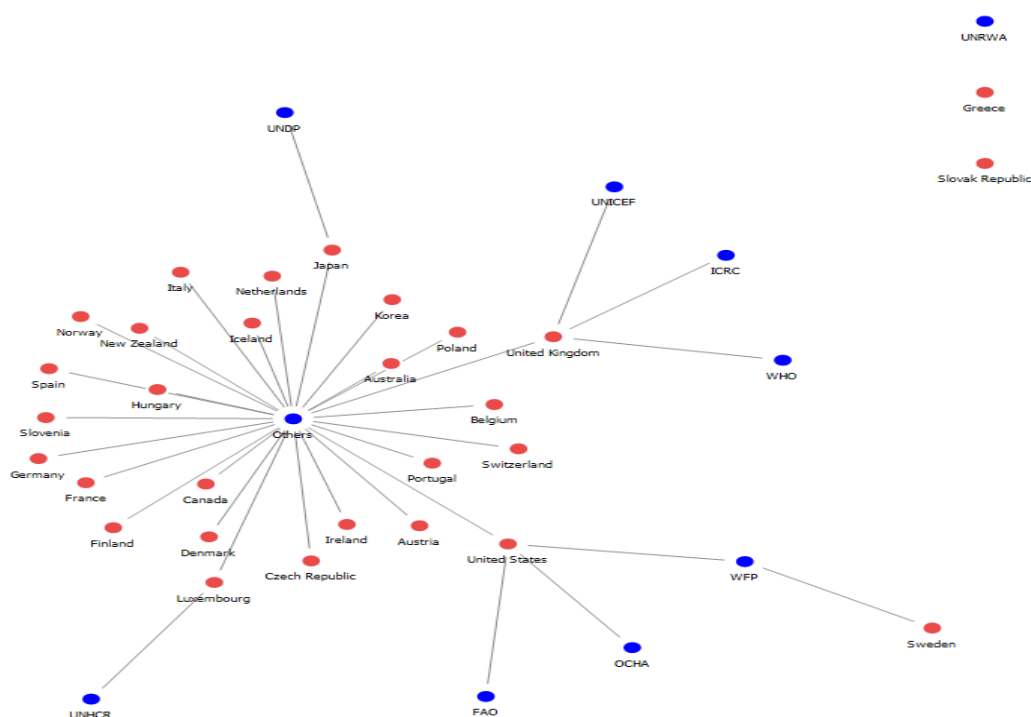


Figure 11 Simplified network in disaster prevention and preparedness area

Table 18 shows which countries are principally related to international organisations in the area of disaster preparedness.

Table 18 Utilisation of representative international organisations by major countries in the field of disaster prevention and preparedness

	Organisation	Remarks
USA	Others, FAO, OCHA, WFP	
UK	Others, WHO, UNICEF, ICRC	
Germany	Others	
Japan	UNDP, Others	
Sweden	WFP	
Norway	Others	
Korea	Others	

5. Conclusion

prevention and preparedness

5.1 *Need to increase the proportion of reconstruction aid*

When analysing excluding Other international organisations ('Others', in the above data), it can be seen that, in the reconstruction and relief area, UNICEF, UNDP and UNRWA are connected in order of priority. In national terms, Germany has the largest number of projects in the field of reconstruction and relief. Korea ranks eleventh, in order to keep pace with the international organisation that has the most active relationship with Korea is UNDP. In addition, in the field of disaster prevention and preparedness, international organisations such as WFP, UNDP and OCHA are the most active. Korea's aid, it will be necessary to consider Korea ranks tenth and appears to be providing more aid than in other areas. However, in the case of these two functions, the proportion provided by aid projects are UNHCR, WFP and UNICEF, it is quite high, will be necessary to actively prepare co-operatives somewhat different from the case of emergency relief. Therefore, a more in-depth review of other international organisations is needed.

5.2 *The need to diversify international organisations in the field of emergency relief*

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In the area of emergency relief, WFP, UNHCR and UNICEF are actively working. The USA ranks first in terms of size and network and Korea ranks of Korea (NRF-2019S1A5C2A03082775).

In the case of Korea, the most active international organisation is the WFP. In the area of emergency relief, the above three international organisations may be considered priority partners. However, given that WFP has too many recipient countries, it is necessary in the future to diversify international organisations, such as by strengthening relations with UNHCR and UNICEF.

5.3 *The need for selective use of other international organisations in the areas of reconstruction relief and disaster*

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