

## 大規模地震災害等における迅速な応急復旧技術の開発

## Development of Technology for Rapid Restoration of Structures after Large-Scale Earthquakes and Disasters

大規模地震災害等においては、交通経路の破断が人命救助や消火活動の大きな妨げとなるため、被災した橋梁等の構造物を代替補完するための迅速な応急復旧が求められる。

本研究では、被災直後の運搬架設機械の制約条件下において緊急輸送路を確保するための経路選定、障害物除去技術、応急構造物を短時間で設置するための構造材料及び架設技術、破損した構造物を人力により手早く補強するための技術等について、要素技術の抽出と、実用化に必要な課題の整理を行う。

In the event of large-scale earthquakes and disasters, the collapse of transportation routes obstructs rescue and fire fighting activities, creating the need for substituting and complementing affected bridges and structures so that emergency services can be rapidly restored.

The objectives of this research are to 1) identify and develop necessary element technology for securing emergency transportation routes immediately after disasters under difficult conditions where mobility of transportation machinery and construction machinery is limited, and 2) sort out and address the issues pertaining to practical utilization of such element technology. The technologies for selecting emergency transportation routes, removing obstructions, building emergency structures quickly, selecting suitable construction materials for emergency structures, quickly reinforcing damaged structures by hand, etc. are being studied under this research.

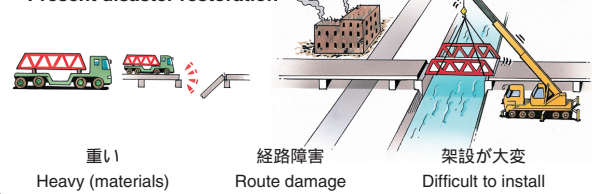
## 大規模地震における迅速な応急復旧技術

## Technology for rapid restoration of structures after large-scale earthquakes and disasters

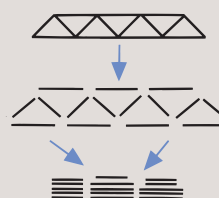


交通経路の寸断により資材輸送に大きな制約  
重機等の進入困難な場所では応急復旧が困難  
応急復旧に要する補強・架設作業が大変

- Disruption of traffic routes severely limits transportation of materials
- Emergency restoration made more difficult when heavy machinery cannot enter areas
- Reinforcement and other temporary measures necessary for emergency restoration difficult to achieve

既存の災害復旧  
Present disaster restoration軽量材料の開発  
(強化プラスチック、アルミ等)  
Development of lightweight materials  
(Reinforced plastic, aluminum, etc.)

	密度 Density	強度(引張) Strength (Tensile)
FRP	1.6	1,100 ~ 3,500Mpa
アルミ Aluminum	2.7	270 ~ 340 Mpa
鉄鋼 Steel	7.8	490 Mpa

部材の小規模化技術の開発  
Development of technology to reduce size of members迅速架設方法の開発  
Development of rapid construction methods

- 接合方法の工夫
- ・現場での簡易な接合
  - ・瞬間接合
- Improved joining methods
- ・On-site simple joining
  - ・Instantaneous joining

迅速運搬・迅速施工を可能とする応急構造物や補強技術  
Emergency structure and reinforcement technology which enables rapid transportation and construction