**Table 1**

Flood disaster management indicators and MAI alignment

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| --- | --- | --- | --- | --- |
| **Stages** | **Activity** | **Parameters** | **Indicator Activity/ Observed Variable**  | **Code of MAI to disaster management activities** |
| Pra Disaster | Preparedness (Pr) | Millennials have a role or involves in arranging disaster management strategies, goals or preparedness plan, preparing requirements even playing as a leader.  | * Creating flood disaster management plan.
* Preparation and testing of disaster emergency response plans.
* Organizing, installing and testing an early warning system.
* Provision and preparation of logistics.
* Fulfillment of basic needs.
* Counseling, training, and rehearsal.
* Evacuation site preparation.
* Accurate data preparation, information, and updating procedures for disaster emergency response.
* Provision and preparation of materials, goods and equipment to fulfill the recovery of infrastructure and facilities.
 | * 5-DK;
* 14-PK; 27-PK;
* 26-CK; 29-CK; 35-CK.
* 4-P; 6-P; 8-P; 22-P; 42-P; 45-P; 23-P;
* 13-IMS; 47-IMS;
* 51-DS; 52-DS; 44-DS;
 |
|  | Mitigation (Mt) | The flood disaster mitigation can be implemented by millennials in several ways such as replanting activities, community service, cleaning up the surrounding environmental, construct sand wall, or environmental-campaign.  | * Sea-wall construction.
* Implementation of designed flood early warning system with other community levels.\*
* Participating in infrastructure arrangements, such as: drainage improvement and making retention well.\*
* Providing education, counseling and training both conventional and modern approach to kids.\*
* Adjusting environment services by tree planting in riverbank and mangrove tree in coastal area.\*
* No plastic usage and eco-bag campaign.\*
 | * 5-DK; 12-DK; 16-DK; 17-DK;
* 26-CK; 29-CK; 35-CK;
* 6-P; 23-P;
* 41-IMS;
* 11-CM;
* 25-DS;
 |
| When a disaster occurs | Emergency response (ER) | Youth have a passion in helping others, supported by excellent personnel and technological abilities that collecting information wisely and spread it widely. It makes young people as millennials relied on in handling disasters.The millennials require to think fast in decision making as a respond of the disaster problem they face. | * Rapid and precise assessment of location, damage and resources
* Determination of disaster emergency status
* Rescuing and evacuating affected communities.
* Meeting basic needs.
* Protection of vulnerable groups.
* Immediate recovery of vital infrastructure and facilities.
 | * 5-DK; 10-DK; 12-DK; 20-DK; 46-DK;
* 3-PK; 33-PK;
* 18-CK; 26-CK; 29-CK; 35-CK;
* 4-P; 6-P; 23-P;
* 9-IMS; 13-IMS; 37-IMS; 41-IMS; 39-IMS; 48-IMS
* 2-CM; 11-CM; 28-CM;34-CM;
* 25-DS; 40-DS;
 |
|  | Adaptation (Ad) | The millennials predict the flooding phenomenon of flooding by observing at the rain fall intensity, prioritizing basic needs, developing kinship system, responsible to help other especially disable person. The millennials are also able to develop cooperation carried out community solidarity | * Assessing forecasting and using technology and information to predict flood.
* Keeping save all precious belonging.\*
* Packing securities in water-proof container or bag to easing to carry.\*
* Prioritizing diffable and elder evacuation plan.
* Health education related to flood/ water-borne diseases.\*
 | * 5-DK; 12-DK; 16-DK;
* 3-PK;
* 26-CK; 29-CK; 35-CK;
* 6-P; 23-P;
* 30-IMS; 31-IMS; 41-IMS; 43-IMS
* 2-CM; 11-CM; 34-CM;
* 25-DS;
 |
| Post-Disaster | Rehabilitation/ recovery skill (RS) | Millennials has been proven to play a role in post-disaster rehabilitation and reconstruction activities. In many case, young people more active voluntarily helping kids and elder overcome their post-disaster trauma.  | * Searching and rescuing victims
* Emergency rescue
* Evacuating victims
 | * 5-DK; 16-DK;
* 15-CK; 26-CK; 29-CK; 35-CK;
* 6-P;
* 41-IMS; 39-IMS;
* 2-CM; 49-CM
 |
|  | Program evaluation and developing lesson learn (PE) | The millennials able to develop their critical thinking skill to analyze the advantages and disadvantages of the strategy effectiveness after disaster management implementation | * Self-evaluation in disaster preparedness.
* Assessing flood disaster management plan implementation.
* Evaluation stakeholder involvement in disaster management implementation
* Developing and accomplishing management strategies from lesson learn.
 | * 32-DK;
* 13-IMS; 41-IMS;
* 1-CM; 21-CM;
* 44-DS;
* 7-E; 19-E; 24-E; 36-E; 38-E; 50-E
 |

Note: The activity in disaster management was developed by the author based on site observation and Regulation of the Republic of Indonesia Number 24 Year 2007. Star mark (\*) indicates all activities has conducted by millennial in current decade.

**Table 2.**

Developed and modified metacognitive inventory statement based on MAI

| **Metacognitive number code** | **Statement** |
| --- | --- |
|
| 1-CM | Self-monitoring on achieving goals/ roles, especially in society  |
| 2-CM | Considering alternative strategies (include sharing information or hoax to overcome the problems before delivered to other. |
| 3-PK | Trying to apply effective previous strategies |
| 4-P | Pacing self while learning disaster management to arrange time effectively. |
| 5-DK | Understanding the intellectual strengths and weaknesses. |
| 6-P | Thinking about what really needs to do before begin a task in disaster preparedness |
| 7-E | Knowing what have done, tasks and weaknesses after disaster management program implementation |
| 8-P | Setting specific goals before begin a disaster management implementation. |
| 9-IMS | Slowing down when collecting important information. |
| 10-DK | Knowing what kind of information is most important to learn. |
| 11-CM | Self-questioning about considering all options when solving a problem. |
| 12-DK | Good at organizing information. |
| 13-IMS | Consciously focusing attention on important information. |
| 14-PK | Understanding and setting a specific purpose for each strategy that used to face hazard impact of disaster. |
| 15-CK | Best learner especially in familiar topic. |
| 16-DK | Knowing what the community expects to help. |
| 17-DK | Good at remembering disaster information (ex: forecasting report, disaster management strategy and plan). |
| 18-CK | Using different action and strategies depending on the situation. |
| 19-E | Self-questioning to find a lesson learn in term of discovery an easier way/ strategy/ problem-solving, to overcome problems regarding previous disaster. |
| 20-DK | Able to control over how well in learning and taking action. |
| 21-CM | Periodically reviewing to help understand important relationships in the way facing the disaster. |
| 22-P | Frequently self-questioning about preparation of the needed material for disaster management. |
| 23-P | Thinking of several ways to solve a problem and choose the best one in term of facing the flood disaster |
| 24-E | Summarizing what kind of action conducted after facing the disaster. |
| 25-DS | Asking others for help when facing problem in receiving information or conducting action during disaster management. |
| 26-CK | Able to conduct self-motivation to act when needed to |
| 27-PK | Aware about what used strategies when facing the problem in disaster management. |
| 28-CM | Analyzing the usefulness of strategies for facing the flood disaster (whenever the disaster comes). |
| 29-CK | Using intellectual strengths to compensate weaknesses. |
| 30-IMS | Focusing on the meaning and significance of new information. |
| 31-IMS | Creating own analogies to make information more meaningful. |
| 32-DK | Assuming as a good judge of how well the understanding of matter is built up. |
| 33-PK | Using helpful strategies automatically. |
| 34-CM | Pausing regularly to check self-comprehension in term of the role in disaster management. |
| 35-CK | Knowing when each strategy they use will be most effective. |
| 36-E | Self-questioning about how well they accomplish the goals once they finished (evaluating their output in disaster management implementation). |
| 37-IMS | Drawing pictures or diagrams to help understand while acting. |
| 38-E | Self-questioning if they considered all options after they solve a problem. |
| 39-IMS | Trying to translate new information into own words. |
| 40-DS | Changing the strategies when fail to understand. |
| 41-IMS | Using the organizational structure of the instruction to help action more effective. |
| 42-P | Reading instructions carefully before begin the actions. |
| 43-IMS | Self-questioning if whether the current information is related to what already know. |
| 44-DS | Reevaluating personal assumptions when get confused of the responsibility. |
| 45-P | Organizing the time to best accomplish the goals. |
| 46-DK | Do (learning, action, caring other) more when feeling responsible on the duty. |
| 47-IMS | Trying to break action strategy down into smaller steps. |
| 48-IMS | Focusing on overall meaning rather than specifics. |
| 49-CM | Self-questioning about how well the action conducted while learning something new. |
| 50-E | Self-questioning if trying the best as much as they could have once they finish their responsibility. |
| 51-DS | Stopping and going back over new task/ responsibility/ information that is not clear. |
| 52-DS | Stopping and reread when get confused about responsibility. |

Note: The code and number of MAI statement represents the sequence of statements in the questionnaire. Source: modification from Schraw & Dennison (1994).