

RECOVERING FROM THE JAVA EARTHQUAKE:
PERCEPTIONS OF THE AFFECTED

Fritz
Institute

TABLE OF CONTENTS

INTRODUCTION	2
METHODOLOGY	3
RECORD OF DAMAGE AND LOSS	4
KEY FINDINGS	5
RECOMMENDATIONS	8
APPENDIX: TABLES AND GRAPHS	9

This report was prepared by Desiree Bliss and Jennifer Campbell for Fritz Institute. The research was conducted by TNS India and TNS Indonesia under the supervision of Dr. Vimala Ramalingam. Fritz Institute would like to thank Dr. Daniel Pallin of the Harvard Humanitarian Initiative for his work on the survey instrument.

Copyright ©2007 Fritz Institute
www.fritzinstitute.org

INTRODUCTION

At 5:53 on the morning of May 27, 2006, a 6.3 magnitude earthquake struck Indonesia's island of Java, causing the deaths of almost 6,000 residents and injuring more than 36,000. In this earthquake-vulnerable area, this latest event completely destroyed over 350,000 homes and severely damaged 278,000 more, directly affecting 2.7 million people and rendering 1.5 million homeless. Exacerbating the destruction of the earthquake was a series of strong aftershocks and heavy rains across the affected provinces of Yogyakarta and Central Java, causing an estimated US \$3.1 billion in damages, comparable to the destruction wrought by the earthquakes in Gujarat in 2001 and Kashmir in 2005.

The Java earthquake occurred less than two years after the 2004 South Asia tsunami, in which Indonesia incurred more than half of the total casualties, primarily in northern Sumatra. Indonesia's 17,000 islands lie on a belt of intense volcanic and seismic activity known as the "Pacific Ring of Fire", the frequent victim of severe earthquakes and volcanic eruptions in addition to floods, fires, landslides, and the Asian bird flu pandemic. In Java alone during the weeks preceding the earthquake, the nearby Mount Merapi volcano, one of the most active in the world, was showing increased activity. A disaster alert was issued in the volcano area and government and aid agencies flew in stockpiles of supplies remaining from the 2004 tsunami. On the sixth of June, less than two weeks after the Java earthquake, increased lava flows and gas emissions caused another 13,000 people to evacuate their homes for camps until volcanic activity subsided.

The absence of feedback from those who receive assistance, the "voice of the affected", constitutes a significant gap in knowledge about the effectiveness of humanitarian assistance. To address this gap, Fritz Institute has conducted a series of assessments of thousands of aid beneficiaries affected by the South Asia tsunami, Hurricane Katrina, Pakistan earthquake, and now the earthquake in Java.¹ In each case the intent of the survey is to understand the outcomes of the massive aid efforts that were mobilized from the perspective of those most affected. It is hoped that such systematic and successive studies will provide insight into common challenges encountered with the type of aid distributed and the process of aid distribution. Over time, such information may be incorporated into the assistance strategies of host governments, donors, and international and local non-governmental organizations.

1. To date, Fritz Institute has conducted in-person interviews with over 6,000 relief recipients across aid agencies, disasters, countries, and time, in order to build a sector-wide evidence base of what works and what does not from the perspective of the aid beneficiary.

METHODOLOGY

The 604 households selected for the study represent 24 districts and 90 villages from the four most earthquake-affected regencies² in Java: Bantul, Gunung Kidul, Klaten, and Sleman (one of the regencies most affected by the activity of the Mt. Merapi volcano). As in previous studies, we asked aid beneficiaries about their perceptions of assistance needed and received, and their satisfaction 48 hours and one month after the earthquake. In addition, the timing of the fieldwork enabled the interviewers to ask affected households about the emergency response to the Mt. Merapi volcanic activity as well. Information gathered included profiles of the affected households, the sufficiency of vital goods such as food, water and shelter before and after the disaster, disaster preparedness levels and training, and the levels of consultation aid providers demonstrated during the provision of relief. Where possible, five-point Likert scales were used.

Within regencies, the sample size was determined by the desire for geographic representation and the extent of the population that was affected. TNS Indonesia, a social science research firm and Fritz Institute's research partner, conducted the fieldwork one month after the earthquake. All the interviewers were Indonesian, fluent in Bahasa Indonesia and local dialects, and participated in a two-day training session with mock interviews and a review of the goals of the study prior to the fieldwork. Face-to-face interviews were conducted with members of the selected households, including families residing in camps and temporary shelters.

The sample is composed of almost equal numbers of males and females, nearly 60% of whom were between 30 and 50 years of age at the time of the survey (See Table 1). Ninety-four percent (94%) of respondents reported that they could read and write, and almost all of the respondents sampled identified themselves as Muslim (97%). Over three-quarters of the households surveyed reported having a monthly income of below 700,000 Rupiah (approximately US \$77) and 85% reported living in a permanent structure prior to the earthquake. The primary sources of income for the respondents before the disaster were farm labor (24%), non-farm labor (17%), petty business trade (15%), and farming of their own land (11%).

Considerable diversity was evident across the four regencies surveyed. Bantul was the regency most affected by the earthquake, suffering approximately 60% of the casualties. It is also the most urban regency and hosts the most historically and culturally significant city of Yogyakarta. Klaten was the second most-affected region, incurring 30% of the deaths from the earthquake. The third regency that suffered from the earthquake, albeit less so, is Gunung Kidul. The Sleman regency was the least affected by the earthquake, but the area was disrupted by the Mount Merapi volcano which lies on its north-eastern border. Variation in income sources was apparent across regencies, with 66% of respondents in Gunung Kidul and 40% in Klaten engaged in agricultural activities. In Bantul, non-farm labor and petty business trade were the primary sources of income for 45% of the respondents, suggesting a less agriculture-dependent population. In Sleman, the predominant income source for almost a third of the households surveyed was cattle rearing.

2. A regency is an administrative area smaller than a province.

RECORD OF DAMAGE AND LOSS

Survey respondents were asked about their lives prior to and after the Java earthquake, as a method of recording the damage and loss sustained. Rating the availability of vital services and facilities on a five-point scale, it was clear that the earthquake created a shortage of food, water, shelter, income, medical care, and education in the affected communities (See Table 2). Community resiliency was strained by the fact that 29% of all households reported that they or their loved ones had suffered physical injury or death; such responses were particularly acute in Bantul and Klaten, where these figures were 40%.

Prior to the earthquake, the vast majority of households surveyed reported having sufficient levels of food (95%) and drinking water (99%). After the disaster struck, the quantities of food available to the communities was reduced significantly, with 42% of all households reporting that it was hard to survive with what they had or that they did not have access to enough food to survive. The accessibility of drinking water was also severely curbed by the earthquake, after which a quarter of households surveyed asserted that it was either hard to survive with their current level of drinking water or they did not have enough water to survive.

Over 98% of households surveyed reported having sufficient shelter before the disaster, while afterwards more than two-thirds asserted that it was hard to survive with what shelter they had or there was not sufficient shelter to survive. The earthquake destroyed over half of the respondents' homes completely while an additional 25% reported severely damaged homes requiring major repairs. Yet despite the widespread destruction to homes, three-quarters of the households were still living in or around the same structure in which they lived before the disaster. Of particular concern were the Bantul and Klaten regencies, in which 31% and 37% of households, respectively, asserted that they did not have enough shelter to survive.

The Java earthquake significantly disrupted the livelihoods of more than two-thirds of the respondents. Forty-two percent (42%) of affected households surveyed asserted that their jobs became impossible after the disaster. The jobs of almost two-thirds (63%) of respondents from Gunung Kidul reportedly became impossible. An additional 25% of all respondents cited damages to facilities or land causing major impairment in their work. Prior to the earthquake, 90% of households surveyed asserted sufficient income levels. In contrast, after the earthquake more than three-quarters of the respondents had shifted to levels of income with which it was hard to survive (54%) or with which they could not survive (24%).

Households surveyed for the study reported remarkably high levels of access to education and medical care facilities prior to the disaster. Ninety-seven (97%) percent of respondents reported sufficient levels of access to education and even more expressed sufficient access to medical care. After the earthquake, over one-third of affected households expressed concern for the loss of education facilities and 24% of affected households in the survey felt their levels of access to medical services was insufficient.

KEY FINDINGS

1. Private Individuals were the Dominant First Responders

As in our studies of aid beneficiaries after past disasters, the Java earthquake activated strong social networks within the affected population, among family members, neighbors, and other civilian first responders. Forty-eight hours after the Java earthquake, over 65% of affected households surveyed cited private individuals as the primary source of aid (See Figure 1A). Private individuals were the most commonly identified provider of assistance with rescue, the location of missing people, the deceased, shelter, drinking water, food, clothing, and relocation (See Table 3A). Twenty percent (20%) of households identified the local government as the primary responder while only 5% recognized local NGOs as such. Thus, approximately 90% of the first response was 'local' while INGOs, the national government, and the private sector were only mentioned by 2% of households, respectively. While the prominence of private individuals is not surprising as the local community is nearby at the time of a disaster, it provides evidence contradicting the perception that first responders tend to be the local government or rescue teams from other countries. The assistance area in which the government did play a significant role according to the beneficiaries was in medical care, in which the presence of local government was more prominent than that of private individuals.

2. One Month Later, Aid Providers Remained Predominantly Local with International NGOs (INGOs) Playing Minimal Role

Thirty days after the Java earthquake, the principal providers of assistance were more diverse. Almost 80% of the participants cited local resources (private individuals, local government, and local NGOs) as their primary source of aid, although the proportions had shifted (See Figure 1B). Private individuals remained the predominant provider with 40% of respondents still citing them as the primary source of aid, most significantly in assistance with livelihood restoration and relocation (See Table 3B). Across all aid categories, local government played a much greater role (28%), particularly in the provision of medical care and food. The role of local NGOs also expanded to 11% of the aggregate response, as did the role of national government (9%) and INGOs (8%). Thirty days after the disaster, international NGOs were recognized for their role in the provision of medical

Figure 1A: Primary Providers Across All Assistance Categories at 48 Hours (%)

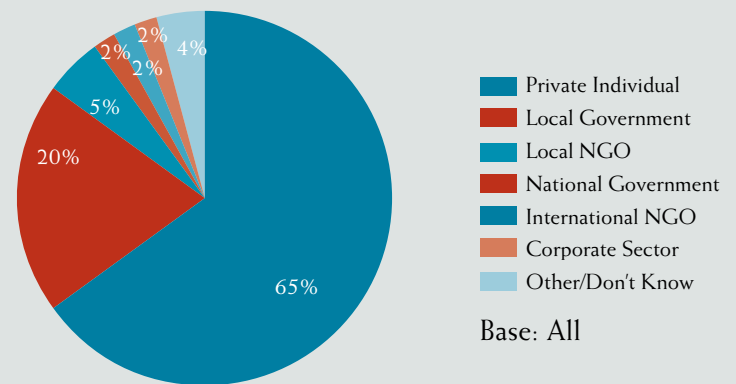
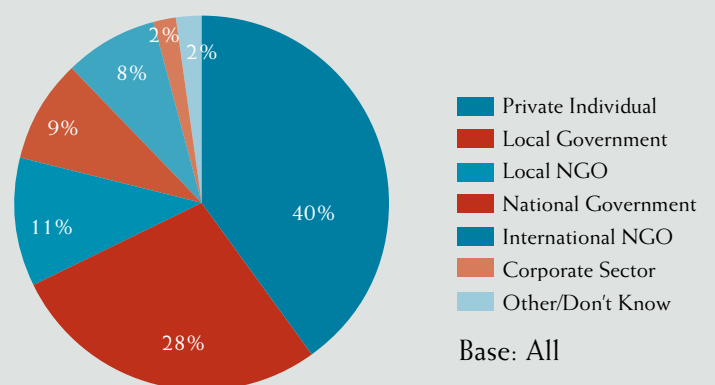


Figure 1B: Primary Providers Across All Assistance Categories at 30 Days (%)



care, for which 22% of respondents cited them as the primary provider. Given the scale of the disaster, it is not surprising that the international relief community did not play a larger role in the response; however, their relatively larger role in specialized assistance, such as medical care, is to be expected. While the role of private individuals in the immediate aftermath of a disaster is appreciated by the affected communities, medical care is an area in which more professional assistance would be desired.

3. One Month After the Earthquake, Satisfaction of Aid Recipients Shifted from Private Individuals to More Formal Aid Providers

As relief assistance transitions from informal assistance by primarily private individuals to more formal assistance offered by the government and local and international NGOs, it is expected that levels of satisfaction may change as well. When respondents were asked to cite a specific, outstanding service provider 48 hours after the earthquake in an open-ended question, 71% of households surveyed indicated private individuals. When asked to identify their satisfaction levels with formal service providers (government, local NGOs, INGOs) on a five-point scale, households were most satisfied with the aid provision of local NGOs (55% 'satisfied' or 'very satisfied'), followed by INGOs (42% 'satisfied' or 'very satisfied') and the government (30% 'satisfied' or 'very satisfied') (See Table 4).

A month later, satisfaction with the three formal assistance providers increased slightly in tandem with their larger presence. Most households remained 'satisfied or 'very satisfied' with local NGOs (70%), followed by INGOs (61%) and the government (36%). When asked to identify the most outstanding service provider 30 days after the earthquake in an open-ended question, the government was most often identified (40%), perhaps associated with the growing presence of the local and national government in assistance. The shift from citing private individuals to the government as the most outstanding provider and the increase in satisfaction with NGOs over time may suggest that while private individuals are appreciated for providing caring and immediate services after a disaster, in the longer term professional aid providers are more widely recognized for the quality of the service provided and their distinctive competence.

4. Higher Levels of Satisfaction were Associated with Higher Levels of Preparedness

Sleman, the regency demonstrating the highest levels of satisfaction with the assistance provided after the earthquake (See Figures 2A and 2B), was more prepared due to emergency preparations in place to respond to the Mount Merapi volcanic activity. Prior to the earthquake, 24% of households surveyed in Sleman asserted that they had participated in disaster preparedness training in contrast to the 4% or less of households expressing the same in the three other regencies. As a consequence of Sleman's preparations, it appears that aid in response to the earthquake was much more immediate in the region. Table 5 shows the relatively large percentage of households in Sleman that received aid on the day of the earthquake. For example, 97% of Sleman households who required assistance received water the day of the disaster, while the same is true for only 61% in Bantul, 57% in Gunung Kidul, and 43% in Klaten.

The earthquake response in Sleman was also characterized by a relatively large government role; the local government was cited by households surveyed as the primary provider in all assistance categories 48 hours after the earthquake. In addition, the government was cited as the most outstanding aid provider by 60% of respondents there. After 30 days, the local government remained the dominant provider of most relief, except for livelihood restoration and clothing, whose primary provider was private individuals, and toilet and sanitation, which more than 50% of respondents said was provided by INGOs.

5. Dissatisfaction with Assistance Associated with Lower Levels of Consultation, Lack of Timeliness and Quality

The international relief community has grown to recognize the importance of engaging affected populations in the provision, monitoring and evaluation of relief in order to ensure assistance is based on needs. As such, it would be expected that higher levels of consultation would be associated with higher levels of satisfaction. Our survey of households affected by the Java earthquake suggests more consultation was evident in regards to food and counseling assistance than for shelter and restoration of livelihoods, which garnered relatively lower levels of satisfaction according to households. Eighty-percent (80%) of households claimed that consultation levels were average to very high for food, and 70% reported similar levels of consultation about counseling services. For shelter and restoration, the aid categories associated with the lowest levels of satisfaction, only 49% reported average to very high levels of consultation.

When households were asked to identify the key reasons for dissatisfaction with assistance 48 hours after the earthquake, timeliness was mostly commonly cited for rescue, locating missing people, help with deceased, and medical care. "It was too late by the time they came," claimed one victim from Gunung Kidul. Thirty days after the disaster, the most widespread reason for dissatisfaction was quality in assistance with livelihood restoration, shelter, relocation, toilet and sanitation, and counseling. When asked about overall problems with aid, the most common complaint was that no aid had come from the "outside" or that there was no aid at all (11%). The same percentage of households surveyed asserted that aid had not been evenly or fairly distributed. An aid recipient in Bantul lamented that the "distribution process was complicated."

RECOMMENDATIONS

1. Private Individuals Provided the Majority of Relief Assistance, Suggesting Household-Level Preparedness and Training are Critical

A consistent theme in disaster relief research is the enormous role of private individuals in the immediate aftermath of a disaster, evidence of strong social networks within the affected communities. The labeling of private individuals as the most outstanding aid provider 48 hours after the earthquake suggests that the potentially more nurturing response of the community is welcome and appreciated by affected households. Individuals within affected communities may be most familiar with and accessible to the most vulnerable households, and should be an area of focus for preparedness initiatives. Often local emergency preparedness initiatives focus on capacity building and training at the community level, while such programs are essential, training at the household level is also critical. Such an approach is particularly relevant in disaster-prone areas and regions in which funding for disaster preparedness is available, such as Indonesia.

2. The Overwhelmingly Local Response Bolsters the Argument for Strengthening Local Capacity

As recommended by the Tsunami Evaluation Coalition, “The international humanitarian community needs a fundamental reorientation from supplying aid to supporting and facilitating communities’ own relief and recovery priorities.”³ Recognizing that local aid providers are inevitably going to dominate the initial relief effort, capacity building efforts that focus on local communities, NGOs and governments must be priorities within disaster-vulnerable countries as well as for international agencies. In the case of the Java earthquake, where the local government was prepared and preparedness training more widely available to vulnerable households, assistance arrived more rapidly and was met with higher levels of satisfaction. Clear roles and regulations at the local and regional level will strengthen coordination efforts with national governments, and with international organizations that arrive to provide relief assistance, but who often are not as familiar with the particular region. These guidelines can provide a foundation from which external organizations can build upon, while improved processes for mapping existing local capacity by international agencies will also improve the overall relief efforts.

3. Restoration and Shelter Assistance Must be Incorporated into Relief Plans as Early as Possible

Assistance with livelihood restoration and shelter emerged from the study as areas of acute need and high priority for affected households. Placing economic recovery at the forefront of relief efforts will enable households to become more self-sufficient and less reliant on aid for food and other assistance, allowing relief agencies to focus on those in greater need. Consultation with those involved in local economic development initiatives, as well as other stakeholders, should take place in order to effectively contextualize programs and ensure sustainability. The result may lead to more efficient and appropriate interventions and sustainable rehabilitation. Our Java earthquake study reinforces the importance of the quality of aid, not just quantity, and more effective consultation with aid beneficiaries by all assistance providers would assure higher-quality assistance. Medical assistance, with which households surveyed were consistently satisfied, may offer lessons for how the quality of other forms of assistance may be improved upon.

3. John Telford and John Cosgrave, *Joint Evaluation of the International Response to the Indian Ocean Tsunami: Synthesis Report* (London: Tsunami Evaluation Coalition, 2006), 23.

APPENDIX: TABLES AND GRAPHS

Table 1: Sample Characteristics

	All	Bantul	Sleman	Gunung Kidul	Klaten
Number of Respondents	604	201	101	101	201
Male (%)	50	50	51	50	49
Primary Occupation (Prior to Earthquake)	Farm Laborer (24%)	Non-Farm Laborer (27%)	Cattle Rearing (30%)	Farmer (44%)	Farm Laborer (38%)
	Non-Farm Laborer (17%)	Petty Business Trader (18%)	Farm Laborer (24%)	Farm Laborer (22%)	Non-Farm Laborer (14%)
	Petty Business Trader (15%)	Farm Laborer (11%)	Petty Business Trader (13%)	Non-Farm Laborer (13%)	Petty Business Trader (14%)
Mean Age	37.7	32.4	37.9	39.9	41.7
Literacy Level (%)	94	98	98	93	89
Income (%)					
Less than 500k IDR	48	42	41	57	51
500k-700k	31	31	44	29	25
700k-2000k	20	23	14	14	24
2000k+	1	4	1	0	0
Education (%)					
Less than 5 Years	39	21	72	51	36
5-12 Years	54	66	25	47	59
Greater than 12 Years	7	13	3	2	5
Muslim (%)	97	98	100	98	94
Injury or Death in Family (%)	29	40	0	18	40
Homes (%)					
Destroyed Completely	51	60	0	47	71
Suffered Severe Damages	25	31	0	41	24
Location (%)					
Same Location as Before Earthquake	75	77	80	86	64
Camp within Village	82	87	90	64	79
Camp outside Village	5	2	10	0	7
Home of Family/Friends within Village	11	11	0	29	11
Home of Family/Friends outside Village	2	0	0	7	3

Table 2: Affected Households' Standards of Living Before and After the Earthquake (%)

		More Than You Need	All You Need	Enough to Survive	Hard to Survive	Not Enough to Survive
Food	Before	15	29	51	5	0
	After	0	4	54	40	2
Water	Before	24	38	36	1	0
	After	5	14	56	21	4
Shelter	Before	12	44	43	2	0
	After	0	7	22	46	25
Income	Before	3	25	62	10	0
	After	1	2	19	54	24
Livestock	Before	4	17	60	13	6
	After	2	6	47	31	14
Education	Before	5	45	47	3	0
	After	1	22	44	27	6
Medical Care	Before	6	47	47	1	0
	After	1	24	51	19	5

Base: All

Table 3A: Primary Provider for Each Assistance Category at 48 Hours (%)

	Private Individual	Local Government	National Government	Military	INGO	Local NGO	Corporate	Religious Org.	Other/Don't Know
Rescue	78	10	1	2	1	4	1	1	2
Location of Missing	90	2	1	2	0	1	0	0	3
Help with Deceased	79	8	0	0	2	5	0	0	6
Shelter	62	20	3	2	2	3	2	1	5
Medical Care	31	44	5	1	5	8	3	2	1
Drinking Water	61	21	1	1	2	7	4	1	2
Food	64	16	3	0	1	6	5	2	3
Relocation	65	18	0	2	0	0	0	2	13

Base: Households Requiring Assistance

Table 3B: Primary Provider for Each Assistance Category at 30 Days (%)

	Local Government	National Government	Military	INGO	Local NGO	Private Individual	Corporate	Religious Org.	Other/Don't Know
Shelter	25	12	2	10	9	32	4	2	4
Livelihood Restoration	17	10	2	9	6	47	2	2	5
Medical Care	44	6	1	22	12	5	3	2	5
Drinking Water	29	1	0	8	11	42	4	1	4
Toilet/Sanitation	31	8	2	12	10	34	0	0	3
Food	42	8	0	6	13	24	2	3	2
Relocation	23	10	4	4	7	46	1	0	5
Counseling	20	2	1	6	20	25	3	16	7

Base: Households Requiring Assistance

Table 4: Affected Households Satisfied or Very Satisfied with Formal Assistance Providers (%)

		All	Bantul	Sleman	Gunung Kidul	Klaten
Government	48 Hours	30	6	85	39	19
	30 Days	36	11	91	48	26
INGOs	48 Hours	42	20	85	50	38
	30 Days	61	42	91	71	58
Local NGOs	48 Hours	55	30	97	55	59
	30 Days	70	50	98	75	71

Base: All

Figure 2A: Household Satisfaction 48 Hours After the Earthquake

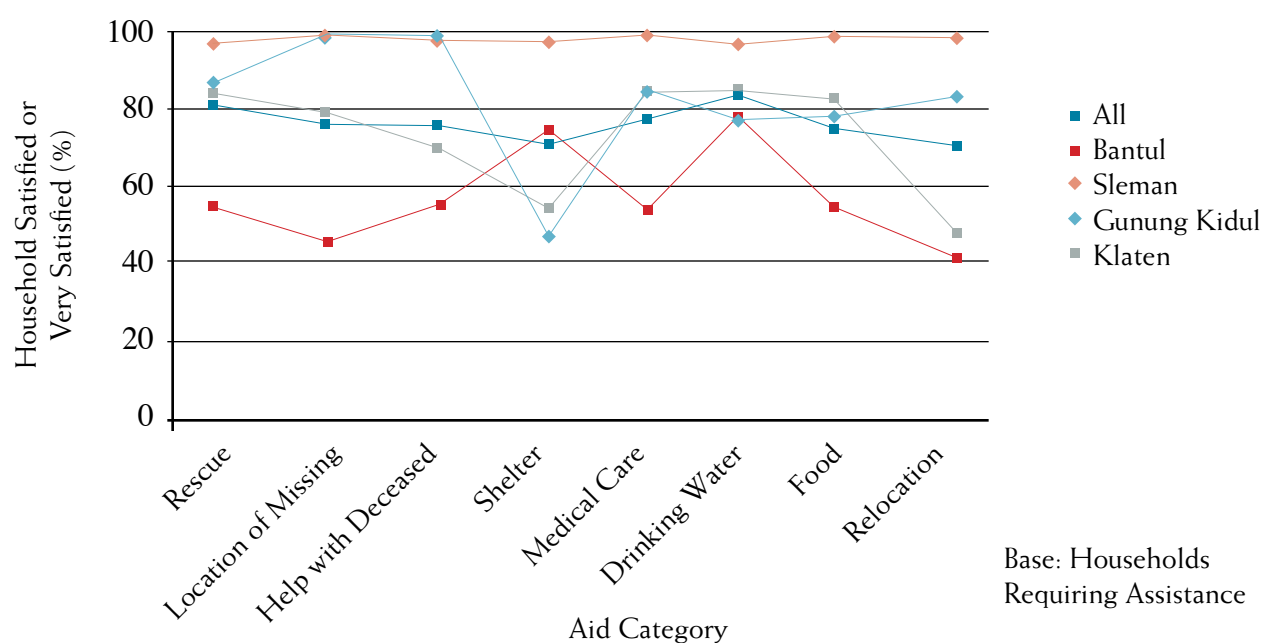


Figure 2B: Household Satisfaction 30 Days After the Earthquake

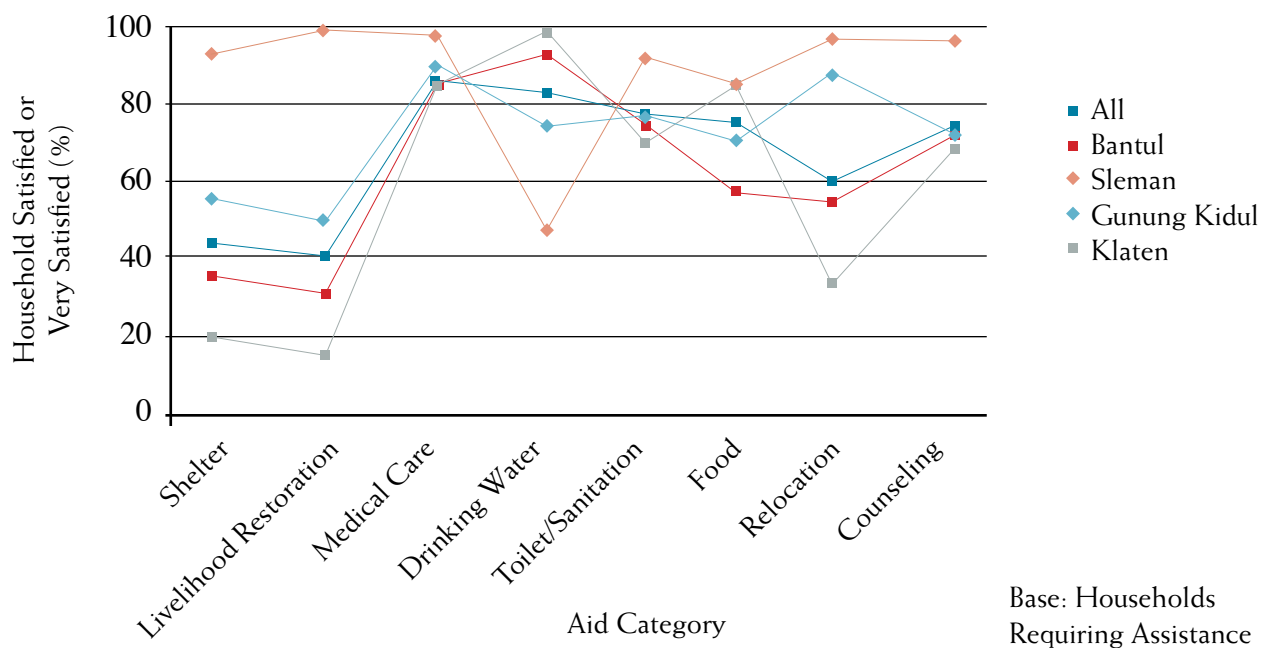


Table 5: Households that Received Aid Within 48 Hours (%)

	All	Bantul	Sleman	Gunung Kidul	Klaten
Rescue	88	94	98	80	83
Location of Missing	81	97	100	100	58
Help with Deceased	76	98	67	86	58
Shelter	49	53	73	35	32
Medical	58	38	79	65	60
Drinking Water	62	61	97	57	43
Food	55	62	85	27	48
Relocation	32	65	73	2	25

Base: Households Receiving Assistance