Economic Outlook for FY2010, FY2011 and FY2012

(revised after the Great East Japan Earthquake)

April 2011

Mizuho Research Institute ("MHRI") has revised its outlook on the Japanese economy in FY2010, FY2011 and FY2012 to reflect the impact of the Great East Japan Earthquake. The key points and forecasts on growth are as follows.

<Key points>

- Japan's economic activity may not avoid a sharp downturn in the first half of 2011 due to the impact of the Great East Japan Earthquake (the "Earthquake"). On the demand-side, the Earthquake will have a significant negative impact upon personal consumption, leading to the contraction of growth in the Jan-Mar quarter and flat growth in the Apr-Jun quarter.
- In the Kanto area, the implementation of rolling blackouts in the summer of both 2011 and 2012 will serve as restraints upon economic activity. Accordingly, full-year industrial production is predicted to fall by approximately 1%.
- In the second half of FY2011, growth will be driven by demand related to reconstruction (public investment, capital investment). On the other hand, the odds are high that the rise of burdens upon the household sector to finance the costs of reconstruction will serve as a drag upon personal consumption.

<Forecast on real GDP growth>

FY2010	+2.7% (previous forecast +2.9%)
FY2011	+1.3% (previous forecast +1.6%)
FY2012	+2.2% (previous forecast +1.8%)

(This page is left intentionally blank)

I. Downturn of current economic conditions due to the Great East Japan Earthquake

The Earthquake has turned out to be the worst natural disaster in Japan's post-WWII history

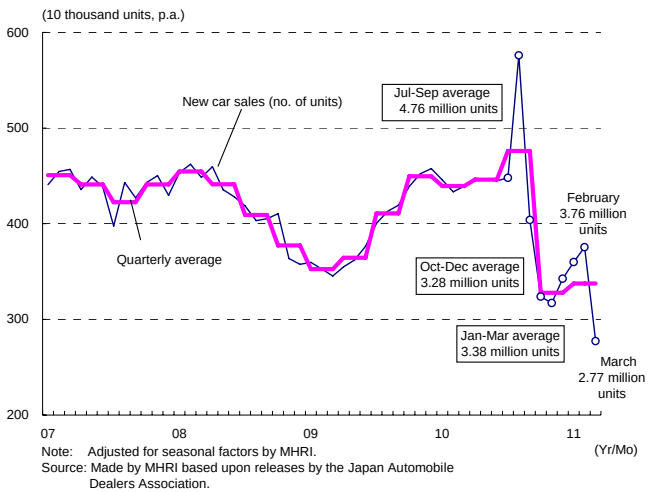
The Great East Japan Earthquake (the "Earthquake") on March 11th (Friday, JST) has turned out to be the worst natural disaster in Japan's post WWII-history. According to estimates by the Cabinet Office, damages run up to JPY16 trillion-JYP25 trillion, which includes damages to buildings (houses, factories, hospitals, ports and roads etc.) and equipment (facilities and ships etc.) stemming from the Earthquake. This surpasses the damages resulting from the Great Hanshin-Awaji Earthquake (JPY9.9 trillion according to estimates by the Hyogo Prefecture) (**Chart 1**).

The damages due to the Earthquake are not limited to the foregoing. In addition to the above-mentioned direct damages pertaining to the loss of stock such as facilities and buildings, note that the Earthquake has also affected economic activity in terms of flow (indirect damages) such as the fall of production and sales accompanying damages to factories and stores and disruptions to the distribution of goods. It is estimated that the indirect damages at the time of the Great Hanshin-Awaji Earthquake totaled more than JPY7 trillion. The indirect damages due to the recent Earthquake should reach a considerable sum. The fall of industrial production accompanying the damages to factories will have a large impact not only upon the afflicted areas but also upon far-flung areas reaching overseas (for example, the cessation of supply of parts from the Tohoku area has led to the stoppage of motor vehicle production in the Tokai and Kyushu areas). Note also that the restriction of electrical power supply is having a large impact upon economic activity primarily in the Kanto area. Furthermore, rumors regarding the safety of agricultural products accompanying the nuclear plant accident and self-restraints upon consumer spending are also expected.

Chart 1: Overview of damages

	The Great Hanshin-Awaji Earthquake	The Great East Japan Earthquake
Date and time of occurrence	January 17, 1995 (5:46 JST)	March 11, 2011 (14:46 JST)
Evacuees	Maximum 320 thousand	Maximum 440 thousand
Damages	JPY9.9 trillion	JPY16 trillion-25 trillion

Chart 2: New car sales



Note: Adjusted for seasonal factors by MHRI.
Source: Made by MHRI based upon releases by the Japan Automobile Dealers Association.

At present, the full extent of the direct and indirect damages due to the Earthquake and tsunami is not yet apparent and the course of events surrounding the nuclear plant accident is still unpredictable. Despite the existence of considerable uncertainties, MHRI has revised its outlook on the Japanese economy up to FY2012 on the basis of currently available facts.

The downturn of economic indicators on March looks certain

Prior to the Earthquake, economic indicators suggested that the Japanese economy was lifting off from a temporary stagnation (or "lull") at the end of last year. However, it now looks certain that the forthcoming data releases on March will take a downturn. Many companies have suspended operations in March due to the impact of the Earthquake and electrical power blackouts. In particular, as a result of the suspension of production at domestic factories of most car makers, the number of vehicles produced in March is estimated to have fallen by 50%-60% from initial projections. The fall of production among car makers alone drags down nationwide industrial production by 7%-9%. Together with other industrial sectors, industrial production in March most likely dropped by more than 10% from the previous month.

Personal consumption also appears to have fallen, dragging down growth into negative territory in the Jan-Mar quarter of 2011

On the demand side, it appears that personal consumption has been particularly hard hit. In addition to the sharp drop of personal consumption in afflicted areas, consumption in areas beyond including the Tokyo metropolitan area appears to have fallen due to the electrical power blackouts and fall of consumer confidence. As a result of cutbacks upon non-essential consumption mainly in the Tokyo metropolitan area, consumption of durable goods such as household electrical appliances and cars and semi-durable goods such as clothing appears to have suffered a sharp drop in March. The number of passenger car registrations (adjusted for seasonal factors by MHRI) was recovering up to February 2011 after bottoming in November 2011 following a sharp fall in October 2011 due to a backlash to the last-minute rush of demand before the expiration of the Eco-Car subsidies (**Chart 2**). However, passenger car registrations fell a sharp -26.1% m-o-m in March. Consumption of services such as dining out also appears to have been affected as a result of the shortening of hours at restaurants and recreational facilities due to the electrical power blackouts. Even though purchases of emergency potable water and batteries and daily necessities most likely increased, overall personal consumption will not be able to avoid a sharp drop in March. Thus, real GDP growth in the Jan-Mar quarter of 2011 is poised for a dip into negative territory, dragged down mainly by personal consumption.

Likewise in the Apr-Jun quarter of 2011, a definite recovery of economic conditions is unlikely. Personal consumption should remain stagnant, given the lingering hesitance to go out because of concerns regarding the nuclear plant accident. Private-sector capital investment is also expected to weaken, in view of the impact upon the progress of projected capital investment due to the shortage of parts and materials and restraints upon non-essential investment. Exports are also predicted to stagnate, considering the time-consuming process of restoring supply chains. Real

GDP growth is forecast to turn out virtually flat in the Apr-Jun quarter.

II. The rolling blackouts and impact upon production activity

The shortage of electrical power over the summer months will curb economic activity

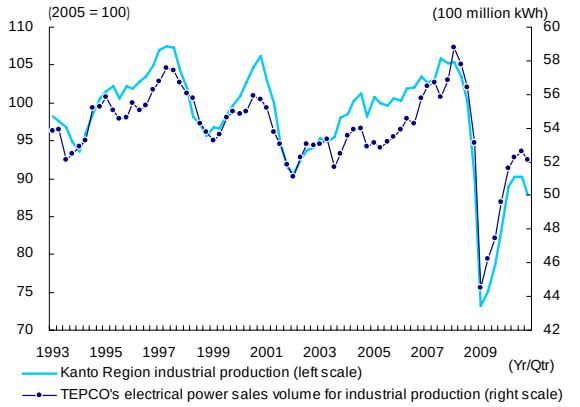
The resolution of the electrical power shortage in the Tokyo metropolitan area is unlikely anytime soon. As a result of the suspension of operations of thermal power plants afflicted by the Earthquake in addition to the Fukushima Daiichi and Daini nuclear power plants, the power supply capacity by Tokyo Electric Power Co. (TEPCO) fell to approximately 35 million kW (TEPCO's maximum electrical power generation capacity is approximately 65 million kW) immediately after the Earthquake. However, supply capacity has recovered to approximately 40 million kW as of April 5th due to the restoration of some of the thermal power plants. According to TEPCO, supply capacity should recover to approximately 46.5 million kW, given the restoration of the afflicted thermal power plants by July this year and the resumption of operations of thermal power plants currently under periodic inspections. On the other hand, in terms of the yearly pattern of electrical power demand, demand usually declines in May due to the fall of power demand for heating, and starts to rise in June due to the increase of demand for air conditioning and peaks around July to August. Although the rolling blackouts are currently scheduled until the end of April, it appears that electrical power blackouts may be avoided in April. The rolling blackouts will likely be terminated at the end of April and the electrical power shortage should be resolved at least for the time being in May. However, given the absence of prospects that the electrical power shortage over the summer months (when demand climbs to around 60 million kW during peak hours) will be resolved, the odds are high that the rolling blackouts may be resumed from June.

In the second half of FY2011, electrical power blackouts should be avoided in the winter, given the revival of electrical power supply capacity to a certain extent as a result of the restoration of the thermal power plants as well as the conservation of electricity on the demand side. However, the odds are high that the electrical power shortage will serve as restraints upon economic activity again in the summer of 2012.

To what extend will the electrical power shortage over the summer curb economic activity? In the past, industrial production and the volume of electrical power sales has moved more or less in lockstep in the Kanto area (**Chart 3**). A simple comparison of electrical power demand during peak hours (60 million kW) and the supply capacity predicted over the summer (46.5 million kW), reveals a shortage of approximately 22.5%. Assuming a 20% cut of electrical power supply over the summer months, simple calculation indicates that it would curb production by approximately 20%. However, since this is

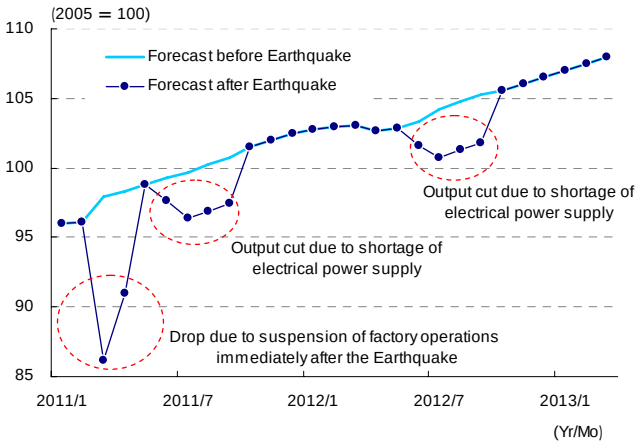
only the shortage in the peak period of the month, it would be an exaggeration to estimate a 20% production curb throughout the summer. In our current economic outlook, we forecast a 10% reduction of industrial production over the summer months in the Kanto area and a 3% drag upon nationwide industrial production as a result of the shortage of electrical power in both FY2011 and FY2012 (**Chart 4**). The resulting decline of annual production would be approximately 1%.

Chart 3: Industrial production and electrical power sales



Note: Electrical power sales volume is seasonally-adjusted by MHRI.
Sources: Kanto Bureau of Economy, Trade and Industry of the Ministry of Economy, Trade and Industry, The Federation of Electric Power Companies of Japan.

Chart 4: Outlook on industrial production



Source: Made by MRHI based upon Ministry of Economy, Trade and Industry, *Indices of Industrial Production.*

The impact of the electrical power shortage is not entirely clear

Even so, the impact of the electrical power shortage upon production activity is not entirely clear. Since the demand for electrical power is subject to large swings depending upon weather conditions, an extremely hot summer such as last year would lead to a large possibility of a sharp rise in demand for household electrical power and the expansion of the time period and area of rolling blackouts.

To a large extent, the rolling blackouts thus far have had a large impact upon production activity due to the fact that it was impossible to know until the last minute whether or not the blackouts would be implemented. In cases requiring a certain amount of preparation before production facilities may be restarted (such as bottled drinking water according to media reports), and cases in which the suspension of production has an adverse effect upon quality (such as semiconductor silicone and yoghurt), the blackouts would have a larger negative impact upon production than the amount of electrical power cut.

On the other hand, there is the possibility that the impact of the electrical power shortage may be eased through efforts among the corporate and household sectors. In the industrial sector, measures such as (1) the increase of production in the night time when electrical power demand declines, (2) the implementation of rolling operations according to geographic zones, and (3) the staggering of summer vacations in cooperation with companies in the same business sector. There are also expectations toward the rise of awareness regarding the conservation of

electricity in the household sector. Even if the implementation of rolling blackouts is inevitable, companies would be able to plan their production and operations if TEPCO provides a clear schedule of the blackouts a month or so beforehand. Given the absence of prospects at this point in time that the electrical power shortage over the summer months can be completely resolved, it would be necessary to minimize its negative effect upon economic activity through efforts on the part of both supply and demand.

In addition, with respect to certain businesses and products, it would be possible to cover the decline of production in eastern Japan by raising the capacity operation rate in the central and western parts of Japan which are not subject to electrical power shortages. As shown above, the impact of the electrical power shortage will depend largely upon conditions such as the weather and efforts among the corporate and household sectors.

III. The Japanese economy will recover in the second half of FY2011 due to reconstruction demand

Capital investment and inventory investment will rise sharply in 2H FY2011 due to reconstruction demand

Even though an economic downturn looks inevitable in the first half of FY2011 due to the impact of the Earthquake, reconstruction demand is expected to emerge in both the public and private sectors in the second half of the fiscal year.

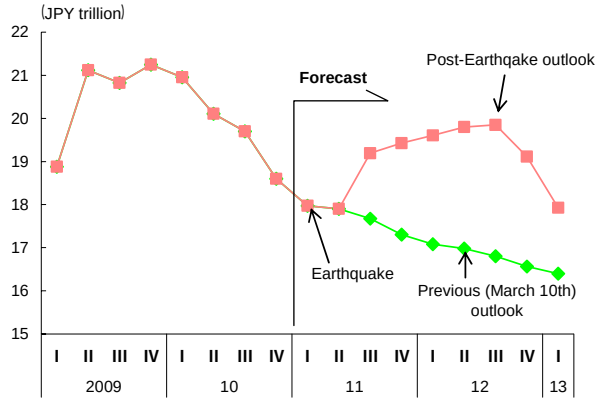
At the time of the Great Hanshin-Awaji Earthquake on January 17, 1995, legislation on post-earthquake reconstruction was passed on February 22, 1995, approximately a month after the earthquake, leading to the passage of the second supplementary budget for FY1994 on February 28, 1995 providing public investment-related expenditures to cope with the disaster. A look at the economic indicators at the time of the Great Hanshin-Awaji Earthquake reveals that housing investment, public investment and inventory investment started to increase in the Apr-Jun quarter of 1995 through reconstruction efforts in the public and private sectors.

This time, in the aftermath of the Great East Japan Earthquake (“Earthquake”), several supplementary budgets are expected for the purpose of restoration and reconstruction from April onward. In our economic outlook, we assume a reconstruction-related budget totaling JPY5 trillion during FY2011 (only including project costs, referred to as “real water”) (the reconstruction-related budget in FY1994 and FY1995 at the time of the Great Hanshin-Awaji Earthquake was JPY3.2 trillion). In our previous economic outlook (as of March 10, 2011), we said that public investment would continue to fall throughout FY2012 due to the reduction of public works-related expenditures in the FY2011 initial budget amid tight fiscal conditions. However, we now expect a sharp rise of public investment from this summer due to the compilation of a supplementary budget comprised mainly of public works-related expenditures for the purpose of reconstruction in

the Apr-Jun quarter of 2011 and its full-fledged implementation from the Jul-Sep quarter (**Chart 5**).

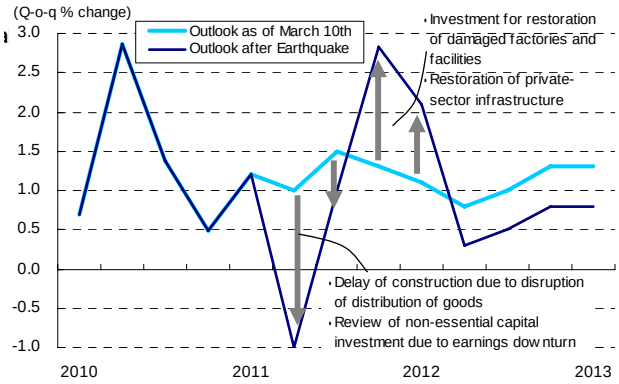
Turning to the private sector, companies should start to restore damaged infrastructure and production facilities in the second half of the fiscal year. At the time of the Great Hanshin-Awaji Earthquake, capital investment recorded a +19.2% q-o-q p.a. rise in the Apr-Jun quarter of 1995. Even though capital investment is predicted to soften in the first half of 2011 due to disruptions to goods distribution, the shortage of certain material and parts, and the review of non-essential investment by companies reflecting concerns regarding the downturn of earnings, a double-digit rise of capital investment is expected in the second half of the fiscal year due to investment for the purpose of reconstruction (**Chart 6**). While our previous economic outlook predicted a gradual rise of capital investment throughout FY2011, we now expect capital investment to fall in the first half of the fiscal year and increase sharply in the second half of the fiscal year, given the impact of the Earthquake. Considering the huge damages to private-sector infrastructure such as railways and electrical power plants due to the wide expanse of the area stricken by the Earthquake, investment for reconstruction may run up to even larger sums.

Chart 5: Outlook on public investment



Source: Made by MHRI based upon Cabinet Office, *National Accounts*.

Chart 6: Outlook on capital investment



Sources: Cabinet Office, MHRI.

IV. Personal consumption will continue to fall throughout the forecast horizon

Child allowance may be frozen from 2H FY2011

Personal consumption is subject to numerous downside risks. As mentioned before, personal consumption is falling sharply at the moment. Looking forward, the following factors will serve as downward pressures upon personal consumption: (1) the fall of services consumption such as eating out at restaurants at the time of electrical power blackouts during the summer months, (2) the fall of labor compensation due to slumping production activity, and (3) the rise of household burdens in order to secure fiscal resources for reconstruction. As for (3), the decision to forego the increase of the child allowance for children younger than three years old scheduled in FY2011 will lead to the rise of household burdens by JPY0.2 trillion/year in comparison with the case where the planned increase is implemented. Of the child allowance, legislation to extend the child allowance up to the first half of FY2011 has been passed with respect to the monthly allowance of JPY13,000/child. However, the odds are high that household burdens will increase in some form from the second half of FY2011 in order to generate fiscal resources for reconstruction. Our economic outlook is based upon the assumption that the child allowance will be frozen and that the child care allowance (with income limits) will be reinstated from the second half of FY2011. As a result, household disposable income would fall by JPY0.8 trillion (0.3%) in FY2011 and JPY1.6 trillion (0.5%) in FY2012. Personal consumption is expected to fall below assumptions before the Earthquake throughout the forecast horizon. Even if the child allowance were continued, note that there is a large possibility that household burdens will rise in some form such as a reconstruction tax, since it would be unrealistic to cover the entire costs of reconstruction by the issuance of more government bonds under Japan's tight fiscal conditions.

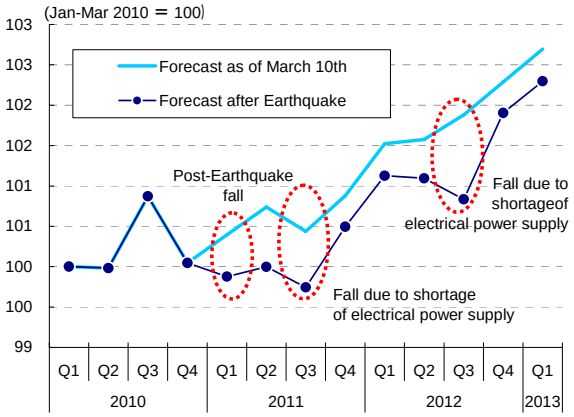
Growth forecast: FY2011 (+1.3%), FY2012 (+2.2%)

In view of the foregoing factors, the rate of Japan's real GDP growth is forecast to fall in the first half of FY2011 and be pushed up by reconstruction demand in the second half of the fiscal year (**Chart 8**). Our forecasts on real GDP growth have been revised to +2.7% in FY2010 (pre-Earthquake forecast +2.9%), +1.3% in FY2011 (pre-Earthquake forecast +1.6%), and +2.2% in FY2012 (pre-Earthquake forecast +1.8%) (**Chart 9**).

Given the plethora of upside and downside risks regarding the economy after the Earthquake, it would be difficult to provide an outlook on all aspects at this point in time (**Chart 10**). Admittedly, the downside risks would outweigh the upside risks, due to strong uncertainties regarding issues such as how long it would take for the recovery of supply chains and the stabilization of the nuclear plant crisis. Having said so, after Japan overcomes the electrical power shortage over the summer months, the Japanese economy should start to exhibit its strength and

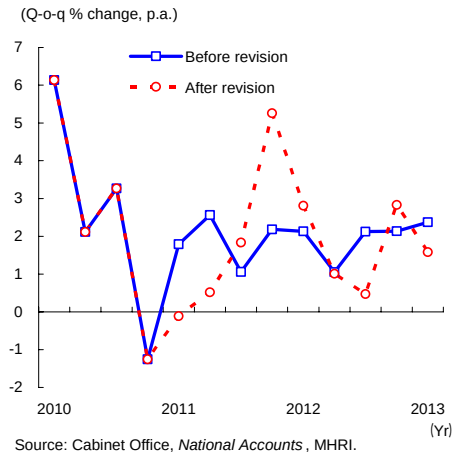
flexibility which proved invaluable in the past to overcome the Oil Crises and the Great Hanshin-Awaji Earthquake. While it goes beyond doubt that the Great East Japan Earthquake is a massive ordeal, the Japanese economy possesses the potential to overcome it.

Chart 7: Outlook on personal consumption



Source: Made by MHRI based upon Cabinet Office, *National Accounts.*

Chart 8: Outlook on real GDP



Source: Cabinet Office, *National Accounts* , MHRI.

[Chart 9: Outlook on the Japanese economy]

		FY2009	FY2010	FY2011	FY2012	2010 Q1	2010 Q2	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3	2011 Q4	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1
Real GDP	Q-o-q % ch	-2.4	2.7	1.3	2.2	1.5	0.5	0.8	-0.3	-0.3	0.1	0.6	1.5	0.7	0.3	0.1	0.7	0.3
	Q-o-q % ch p.a.	--	--	--	--	6.1	2.1	3.3	-1.3	-1.4	0.4	2.4	6.2	3.0	1.1	0.3	2.7	1.3
Domestic demand	Q-o-q % ch	-2.7	1.8	1.2	1.8	1.0	0.3	1.0	-0.2	-0.3	0.1	0.5	1.2	0.8	0.1	0.0	0.7	0.2
Private sector demand	Q-o-q % ch	-5.0	2.5	1.3	2.1	1.5	0.3	1.4	-0.1	-0.2	0.1	0.2	1.4	0.9	0.0	0.0	1.0	0.5
Personal consumption	Q-o-q % ch	0.0	1.1	0.1	1.2	0.5	-0.0	0.9	-0.8	-0.2	0.1	-0.3	0.8	0.6	-0.0	-0.3	1.1	0.4
Housing investment	Q-o-q % ch	-18.2	0.2	9.2	4.6	1.6	-0.3	1.8	2.9	2.4	1.8	2.4	2.9	0.5	0.9	1.0	0.7	0.5
Capital investment	Q-o-q % ch	-13.6	5.4	3.3	4.4	0.7	2.9	1.4	0.5	1.2	-1.0	1.0	2.8	2.1	0.3	0.5	0.8	0.8
Inventory investment	Q-o-q contribution, % pt	-1.1	0.5	0.2	0.1	0.7	-0.1	0.3	0.3	-0.3	0.1	0.1	0.1	0.0	-0.0	0.0	0.0	0.0
Public sector demand	Q-o-q % ch	5.2	-0.1	0.8	0.8	-0.4	0.2	-0.2	-0.6	-0.5	0.2	1.4	0.4	0.3	0.3	0.2	-0.4	-0.9
Government consumption	Q-o-q % ch	3.4	2.1	1.0	0.8	-0.3	1.1	0.3	0.3	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1
Public investment	Q-o-q % ch	14.2	-9.8	0.9	-0.2	-1.4	-4.0	-2.0	-5.6	-3.4	-0.4	7.2	1.2	0.9	1.0	0.2	-3.7	-6.2
External demand	Q-o-q contribution, % pt	0.3	0.9	-0.0	0.2	0.5	0.3	-0.1	-0.1	-0.1	-0.0	0.1	0.2	-0.1	0.1	0.1	-0.1	0.0
Exports	Q-o-q % ch	-9.6	16.9	3.3	6.3	6.6	5.3	1.5	-0.8	-0.2	-0.1	0.9	5.4	0.5	1.5	-0.3	2.5	1.8
Imports	Q-o-q % ch	-11.0	10.7	3.5	4.9	3.0	4.0	2.9	-0.1	0.5	0.1	-0.0	4.3	1.0	0.6	-1.0	3.5	1.5
GDP (nominal)	Q-o-q % ch	-3.7	0.7	-0.2	1.6	1.7	-0.6	0.6	-0.7	-0.8	-0.6	0.4	1.3	0.9	-0.1	0.1	0.4	0.6
GDP deflator	Y-o-y % ch	-1.3	-1.9	-1.5	-0.6	-2.8	-1.9	-2.1	-1.6	-2.2	-1.8	-1.8	-1.6	-0.8	-0.8	-0.4	-0.6	-0.4
Domestic demand deflator	Y-o-y % ch	-2.2	-1.1	-0.4	-0.3	-1.4	-0.9	-1.4	-1.0	-1.0	-0.6	-0.5	-0.5	-0.1	-0.5	-0.2	-0.2	-0.1

Source: Made by MHRI based upon Cabinet Office, *Preliminary Quarterly Estimates of GDP.*

[Chart 10: Major upside and downside risks after the Earthquake]

	Upside factors	Downside factors
Personal consumption	・Increase of purchases of goods related to the disaster and electrical power blackouts (such as water and batteries)	・Decrease of disposable income due to scale-down/freeze of child allowance ①JPY0.2 tril due to suspension of increase (JPY7,000/month) for children younger than 3 years ②JPY1.6 tril in the event of a freeze of the child allowance (the reinstatement of the childcare allowance subject to income limits) ・Decrease of outings (to restaurants etc.) due to concerns regarding blackouts and radioactivity ・Decrease of services consumption due to the cancellation of events ・Restraints upon non-essential consumption (durable and semi-durable goods) due to downturn of consumer confidence
Housing investment	・Housing construction for restoration (using private-sector funds)	・Delay of construction due to shortage of materials and fuel and disruptions to goods distrbution
Capital investment	・Restoration of factories and commercial facilities damaged by the disaster ・Restoration of thermal power generators and installation of gas turbines ・Restoration of private-sector infrastructure (railways and communication facilities etc.)	・Delay of construction due to shortage of materials and fuel and disruptions to goods distribution ・Review of investment plans reflecting the downturn of corporate earnings
Private inventory investment	・Increase of output to restore inventories of food, batteries, gasoline etc. ・Inventory buildup during periods with no restrictions upon electrical power (May, October)	・Suspension of operations due to the Earthquake ・Output cuts due to electrical power blackouts
Public investment	・Reconstruction demand (temporary housing, repair of ports and roads)	・Delay of construction due to shortage of materials and fuel and disruptions to goods distribution
Public inventory investment		・Release of government reserves (of rice and crude oil)
Exports		・Decline due to suspension of operations and disruptions to goods distribution after the Earthquake ・Decline of shipments for exports accompanying output cuts due to blackouts ・Decline of tourists from overseas (decline of services exports) ・Export slump due to concerns and rumors regarding radioactivity etc.
Imports	・Increase of procurement of of goods such as as fuel and parts from overseas ・Increase of food imports (due to concerns regarding radioactive contamination of domestic food)	・Decline of raw material & parts imports accompanying output cuts
Industrial production	・Increase of output of goods related to the disaster and electrical power blackouts (such as water and batteries) ・Rise of capacity utilization rate in areas outside disaster-stricken areas ・Increase of output of construction material etc. necessary for reconstruction	・Damages to factories due to the earthquake ・Output cuts accompaying the blackouts ・Difficulty to procure parts due to delay in recovery of supply chains
Prices	・Rise of prices of certain goods which are scarce ・Decline in supply of vegetables and milk etc. which are subject to concerns regarding radioactive contamination	・Downward pressures due to restraints upon purchases of durable and semi-durable goods

Source: MHRI.

＊＊＊＊＊＊＊＊＊

Mizuho Research Institute Ltd. Kazuhiko Yano, Chief Research Economist kazuhiko.yano@mizuho-ri.co.jp


MIZUHO