

APPENDIX V:

INVOLUNTARY RESETTLEMENT

**Presidential Regulation Number 36/2005 Regarding
Land Procurement for the Implementation of Development Related to Public Interest**

**With the blessing of God,
The President of the Republic of Indonesia**

Considering:

- a. Due to the increase in development related to public interest that requires land, it is necessary to procure land quickly and transparently while respecting the principle of legal rights of land.
- b. That the regulation regarding land procurement for the implementation of development related to public interest as stipulated in Presidential Decree Number 55/1993 is outdated as the legal basis for the implementation of development related to public interest.
- c. Due to considerations in clauses a and b, it is necessary to stipulate the Presidential Regulation regarding land procurement for the implementation of development related to public interest.

Recalling:

1. Article 4, Clause 1 of the Constitution of the Republic of Indonesia 1945.
2. Law Number 5/1960 on the Basic Regulations of the Land Principle (State Gazette of the Republic of Indonesia Number 104 Year 1960, additional State Gazette Number 2043).
3. Law Number 51 prp/1960 on Prohibition Order of Land Usage Without Permit from the Owner or Claimant (State Gazette of the Republic of Indonesia Year 1960 Number 158, additional State Gazette Number 2106).
4. Law Number 20/1961 on Rights Repeal to the Land and Existing Objects on the land (State Gazette of the Republic of Indonesia Year 1961 Number 288, additional State Gazette Number 2324).
5. Law Number 24/1992 on Spatial Plan (State Gazette of Republic of Indonesia Year 1992 Number 115, additional State Gazette Number 3501).

Decided:

To stipulate: Presidential Regulation regarding land procurement for implementation of development related to public interest.

Chapter I

GENERAL PROVISION

Article 1

In this Presidential Regulation, the following words and expressions shall have the meanings as stated below:

1. Central government, hereinafter referred to as government, is the President of the Republic of Indonesia, who holds the authority to rule the Republic of Indonesia as stated in the Constitution of the State of the Republic of Indonesia Year 1945 (UUD 1945).
2. Local government is governor, Bupati/mayor, and other local government Officials as the elements of local government implementers.
3. Land procurement is any activity to acquire land by giving compensation to the owner who releases the land, buildings, crops, and objects that are attached to the land or the land rights repeal.

4. Spatial Plan is the result of spatial planning.
5. Public Interest is the interest of most of the society.
6. Release or delivery of land rights is the activity of releasing land by law under contractual terms, by the rightful owner of the land, and giving compensation on the basis of deliberation.
7. The party who releases or delivers the land, buildings, crops, and other objects attached to the land are individuals, legal entities, institutions, business units, who have ownership rights of the land and/or buildings and/or crops that exist on the land.
8. Land rights are rights to the parcel of land as stipulated in Law Number 5 Year 1960 on Basic Regulations of Land Principles.
9. The Land Procurement Committee is the committee formed to assist with the land procurement for implementation of the development related to public interest.
10. Deliberation is the activity consisting of processes of dialogue, reciprocating and sharing opinions, and includes the desire to get a voluntary agreement on the form and level of compensation and other problems which are related to the activity of land procurement based on equality between owner of the land, buildings, crops, and/or other objects attached to the land and the institution that requires the land.
11. Compensation refers to compensation for physical and/or non-physical loss, due to land procurement, to the owner of the land, buildings, crops, and other objects attached to the land that will provide better life continuity compared with pre-project socio-economic conditions.
12. Institution/team of land price appraisal is a professional and independent institution/team, who is to determine the land value/price to be used as a base to achieve agreement on the amount of compensation.

Chapter II Land Procurement

Article 2

- (1) Land procurement for implementation of development related to public interest by government or local government is implemented by:
 - a. Release or deliverance of land rights
 - b. Revoking the land rights.
- (2) Land procurement other than for the implementation of development related to public interest by government or local government, will be done through buying and selling, exchange or other ways that are approved by each party voluntarily.

Article 3

- 1) The release or delivery of land rights as mentioned in Article 2 clause (1) is conducted based on the principle of respecting land rights
- 2) Revoking the land rights as mentioned in Article 2 clause (1) letter b, is done based on the stipulation as stated in Law Number 20/1961 regarding Revoking the Land Rights and objects that are attached to it.

Article 4

- (1) Procurement and plan of land fulfillment, which is needed for implementation of development related to public interest, can only be conducted if they are in accordance with the Spatial Plan, which has already been established/stipulated.
- (2) For a region that has not yet stipulated the spatial plan, land procurement as referred to in clause (1) will be conducted based on the existing region/city plan.
- (3) If the proposed land has been stipulated as a location for the implementation of development related to public interest based on a Bupati/mayor or governor's decree,

then everybody who wants to buy the land at the proposed site, must gain written permission from Bupati/mayor or governor in accordance with their authority.

Article 5

Developments related to public interest, which are conducted by the government or local government are as follows:

- a. Public Roads, highways, railways (on land, above the land area, subterranean), drinking water/clean water networks, drainage and sanitation systems
- b. Reservoirs, dams, irrigation, and other water resource facilities.
- c. Public hospitals and community health centers
- d. Ports, airports, railway stations and bus stations
- e. Religion facilities
- f. Education centers or schools
- g. Public markets
- h. Public funeral facilities
- i. Public safety facilities
- j. Post offices and telecommunication centers
- k. Sport facilities
- l. Broadcasting centers, television stations and their support facilities
- m. Offices of the government, local government, foreign state delegations, United Nations, and or international institutions under the United Nations
- n. Indonesian National Military Facilities and Republic of Indonesian Police according to their functions and main activities
- o. Jails and rehabilitation institutions
- p. Simple public flats
- q. Sites for disposal of waste/garbage
- r. Natural Sanctuaries and Cultural Preserves
- s. Gardens
- t. Social Institutions
- u. Electricity power generators, transmission, and distribution (supply) centers.

Chapter III

COMMITTEE, DELIBERATION, AND COMPENSATION

Part One

Land Procurement Committee

Article 6

- (1) Land procurement related to public interest in a District/City area is done with assistance from the Land Procurement Committee of the District/City, which is formed by the Bupati.
- (2) The Land Procurement Committee of the special capital region of Jakarta (DKI Jakarta) province is formed by the governor.
- (3) Land procurement that is located in two Districts/Cities or more areas, is done with assistance from the Land Provision Committee at the provincial level, which is formed by the governor.

- (4) Land procurement that is located in two provinces or more, is done with assistance from the Land Provision Committee at the national level, which is formed by the Ministry of Home Affairs. This committee consists of government and the related local government elements.
- (5) The members of the Land Procurement Committees as mentioned in clauses (1), (2), and (3) are comprised of related local government staff.

Article 7

Land Procurement Committee is mandated as follows:

- a. To carry out the survey and inventory of land, buildings, crops and other existing objects, which are attached to the land, which will be released or delivered.
- b. To conduct the survey regarding the legal status of land that will be released or delivered, and the supporting documents.
- c. To estimate and propose the amount of compensation for the land which will be released or delivered.
- d. To provide clarification or information disclosure (consultation) to the community, which will be affected by the development plan, by means of public consultation, either by meeting, press (print), or electronic media, so that anyone in the community who will be affected by the development plan, will be informed.
- e. To deliberate with all landowners and the government and/or local government institutions that need land, in order to stipulate the type and/or amount of compensation.
- f. To witness the transferring of compensation implementation to the owners of the land, buildings, crops, and other existing objects on the land.
- g. To prepare the minutes of land rights release or delivery.
- h. To file and document all of the land procurement files, and send them to the competent body/institution.

Part Two Deliberation

Article 8

- (1) Land procurement for implementation of development related to public interest is done through deliberation in order to obtain agreement of concerns regarding:
 - a. Implementation of development for public interest in that location.
 - b. Type and amount of compensation.
- (2) Deliberation is done in a place as determined in the letter of invitation.

Article 9

- (1) Deliberation is done directly between the owner of the land, buildings, crops, and other objects attached to the land with the Land Procurement Committee and the government institution or local government who requires the land.
- (2) In cases where there are an inadequate number of landowners present to hold the deliberation effectively, the deliberation as referred to in sentence (1) will be done by the Land Procurement Committee and the government institution or local government who requires the land with a proxy who will act in their power and represent all the landowners and their rights to the land.
- (3) Appointment of the proxy representing all the landowners as referred to in sentence (2) must be done in written form, certified by stamp and communicated to the Head of village or by an appointment/authorization letter, which is made in the presence of authorized government officials

- (4) Deliberation, as referred to in sentence (1) and sentence (2), is led by the chief of the Land Procurement Committee.

Article 10

- (1) In the case where the planned technical site for development activity related to public interest cannot be transferred or moved to another location or place, deliberation must be done within 90 days at the longest commencing from date of first invitation.
- (2) If an agreement is not reached after the deliberation referred to in sentence (1), the Land Procurement Committee may specify the type and amount of compensation as referred to in Article 13 and entrust the monetary compensation to the district court that has jurisdiction over the pertinent territory.
- (3) If there is a dispute of ownership after the compensation stipulation as referred to in sentence (2), the Land Procurement Committee may entrust the monetary compensation to the district court that has jurisdiction over the pertinent territory.

Article 11

If through deliberation, an agreement is reached between the landowner and the governmental institution and/or local government requiring the land, the Land Procurement Committee will release the decision regarding the type and amount of compensation according to the agreement.

Part Three Compensation

Article 12

Compensation regarding land provision will be given for:

- a. Land rights
- b. Buildings
- c. Crops
- d. Other objects attached to the land.

Article 13

- (1) Compensation can be given in form of:
- a. Money; and/or
 - b. Substitution land; and/or
 - c. Resettlement.
- (2) In the case where landowners do not want the form of compensation referred to in clause (1), they can be compensated in form of shares (capital sharing), in accordance with the laws and regulations.

Article 14

Replacement for a plot of land which is controlled under a traditional right (*hak ulayat*) shall be given in the form of public facility development or another beneficial form for the local community.

Article 15

- (1) The amount of compensation is based on:
- a. The Selling Value of the Taxed Object (*NJOP*) or the actual market price by considering the current year *NJOP*, based on the stipulation by the Land price appraisal team, which is formed by the Land Procurement Committee.

- b. The market price of buildings appraised by a local government agency, which is in charge or responsible for buildings or construction.
 - c. The market price of crops/plants is appraised by local government staff, which is in charge/responsible for agriculture.
- (2) In order to stipulate the basis for calculating the compensation, the institution/team of land price appraisal is established by Bupati/mayor or governor of province of the special district capital of Jakarta (DKI Jakarta)

Article 16

- (1) Compensation will be delivered directly to:
- a. Owner of the land or rightful claimant as according to laws and regulations
 - B. *Nadzir* of communal ownership land.
- (2) In the case where land, buildings, crops, or objects attached to the land are co-owned by multiple people, and one or more of the land owners cannot be determined, the compensation for those who cannot be found will be entrusted to a district court which has jurisdiction over the pertinent territory.

Article 17

- (1) A landowner who does not accept the decision of the Land Procurement Committee can complain to Bupati/mayor or governor or Minister of Home Affairs according to their authority, with clarification of causes and reasons for the objection.
- (2) Bupati/mayor or governor or Minister of Home Affairs, according to their authority, will make an effort to find a solution regarding the type and amount of compensation by considering the opinions and desires of the land owners or their representatives.
- (3) After hearing and studying the owner's opinions and desires and also the considerations of the Land Procurement Committee, the Bupati/mayor or governor or Minister of Home Affairs in accordance with their respective authority, may improve, establish, or revise the decision of the Land Procurement Committee regarding the type and/or amount of compensation to be given.

Article 18

- (1) If the solution proposed by the Bupati/mayor or governor or Minister of Home Affairs is still not accepted by landowners and the development location can not be changed or removed, the regent/mayor or governor or Minister of Home Affairs, according to their authority, may propose a solution by revoking the land ownership rights based on Law Number 20 Year 1961 on Revoking the Rights of the Land and Existing Objects attached to the land.
- (2) Suggestions for solutions as referred to in clause (1) are proposed by Bupati/mayor/governor/Minister of Home Affairs according to their authority, to the Head of the National Land Agency with cc to the Minister from the institution requiring the land and to the Minister of Law and Human Rights.
- (3) After receiving suggestions on the solution mentioned in clause (1) and clause (2), the Head of the National Land Agency will consult with the Minister from the institution requiring the land and the Minister of Law and Human Rights.
- (4) A request to revoke the land ownership rights will be submitted to the President by the Head of the National Land Agency and is to be signed by the Minister from the institution requiring the land, and the Minister of Law and Human Rights.

Article 19

Regarding land that is cultivated without the permission of the rightful claimant or his proxy, the solution will be based on Law Number 51 PRP/ 1960 on Prohibition Order of Land Usage Without Permission from Rightful Claimant.

Chapter IV Small Scale Land Procurement

Article 20

Development related to public interests that requires land of less than 1 hectare, can be done directly by the government institution that needs the land with all of the landowners, through sales or bartering or other methods that were previously agreed on by both sides.

Chapter V Transitional Provisions

Article 21

By establishment of this Presidential Regulation, the implementation regulations from the Presidential Decree Number 55 Year 1993 on Land Procurement for Development Related to Public Interest are still valid as long as they are not in contradiction with this Presidential Regulation.

Chapter VI Closing Provision

Article 22

Further provisions and procedures for land procurement for development related to public interest will be stipulated by the Head of National Land Agency Regulation.

Article 23

At the time of this Presidential Regulation establishment, Presidential Decree Number 55 Year 1993 on Land Procurement for Development Related to Public Interest is revoked and declared as no longer valid.

Article 24

This Presidential Regulation is established on the date of stipulation.

Stipulated in Jakarta
3rd May, 2005

President of the Republic of Indonesia

Dr. H. Susilo Bambang Yudhoyono

Presidential Regulation no.65/ 2006

Regarding the

Amendment of the Presidential Regulation No.36/2005 regarding Land Procurement for the Implementation of Development for Public Interest

Decided that:

Article 1

Several provisions in the Presidential Regulation no. 36/2005 regarding Land Procurement for the Implementation of Development for Public Interest are amended as follows:

1. Article 1, letter 3 is amended into:

“Article 1

(3) Land procurement is any activities to obtain land by means of giving compensation to those who release/give their land, buildings, crops, or other objects attached to the land.”

2. Article 2, paragraph (1) is amended into:

“Article 2

(1) Land procurement for implementation of development related to public interest by government or local government is implemented by release or deliverance of land rights.

(2) Land procurement other than for the implementation of development related to public interest by government or local government is implemented by means of buying-selling mechanism, exchange, or other means as voluntarily agreed by the related parties.”

3. Article 3 is amended into:

“Article 3

Release or deliverance of land rights as referred to in Article 2 is implemented based on the principles of respecting the land rights.”

4. Article 5 is amended into:

“Article 5

Development related to public interest by government or local government as referred to in Article 2, which are owned or to be owned by Government or Local Government will include:

- a. Public roads and toll roads, railway tracks (on land, above the land area, subterranean), drinking water/clean water networks, drainage and sanitation systems
- b. Reservoirs, dams, irrigation dams, and other water resources facilities
- c. Ports, airports, railway stations, and terminals
- d. Public safety facilities, such as dyke/embankment to prevent flood, volcanic eruption, and other disasters
- e. Waste disposal sites
- f. Natural & cultural conservation
- g. Power Plants, transmission, and electrical power distribution."

5. Article 6, paragraph (5) is amended into:

"Article 6

- (1). Land procurement related to public interest in a District/City area is done with assistance from the Land Procurement Committee of the District/City, which is established by the Bupati/Walikota
- (2). DKI Provincial Land Procurement Committee is established by the Governor.
- (3). Land procurement for the area located in two districts/cities or more, is conducted with the assistance of Provincial Land Procurement Committee, established by the Governor.
- (4). Land procurement for the area located in two provinces or more, is conducted with the assistance from the Land Procurement Committee, established by the Minister of Home Affairs, which consists of government and the related local government elements.
- (5). The members of the Land Procurement Committee as referred to paragraph (1), (2), and (3) comprise of related local government elements and National Land Agency (*BPN-Badan Pertanahan Nasional*). "

6. Article 7, letter c is amended into:

"Article 7

The tasks of the Land Procurement Committee are as follows:

- a. Conduct research and inventory of land, buildings, crops, and other objects attached to the land, of which rights is about to be released or delivered.

- b. Conduct research regarding the legal status of the land, of which rights are to be released or delivered and the supporting documents.
- c. Determine the compensation amount on land, of which rights is to be released or delivered.
- d. Provide explanation or counseling to the Project Affected Peoples regarding the plans and objectives of land procurement, in the forms of public consultation through face-to-face meetings, printed media, or electronic media, so that anyone in the community who will be affected by the development plan, will be informed.
- e. Hold a discussion between land owners and government institution and/or local government who needs the land in order to determine the amount and form/types of compensation.
- f. Witness the compensation delivery process to the owners of the land, buildings, crops, and other objects on the land.
- g. Create an official report on the land release/delivery activities.
- h. Administrate and document all the files related to land procurement and hand over them to the competent parties."

7. Addition to Article 7A is as below:

"Article 7 A

The budget for the Land Procurement Committee, will be further regulated by the Minister of Finance after consultation with the Head of National Land Agency (*BPN*)."

8. Article 10, paragraph (1) and (2) are amended, so the article 10 will be as follows:

- (1) In the case where the planned technical site for development activity related to public interest cannot be transferred or moved to another location or place, then the discussion is to take place within 120 days at maximum, effective from the first date of invitation.
- (2) If no agreement is achieved from the discussion as referred to in paragraph (1), then the Land Procurement Committee will determine the compensation amount as referred to in Article 13, letter a, and entrust the monetary compensation to the district court that has jurisdiction over the pertinent territory.
- (3) If there is a dispute of ownership after the compensation stipulation as referred to in paragraph (2), then the committee will entrust the monetary compensation to the district court that has jurisdiction over the pertinent territory."

9. Article 13 is amended into:

“Article 13

Several possible forms/types of compensation are as below:

- a. Cash; and/or
- b. Replacement land; and/or
- c. Resettlement; and/or
- d. A combination of two or more compensation forms as referred to in letters a, b, and c.
- e. Other forms, which are agreed/approved by the related parties.”

10. Article 15, paragraph (1) is amended into:

“Article 15

(1). The calculation of the compensation amount is based on:

- a. Taxed-Object Selling Value (*NJOP*) or the actual market price by considering the current year *NJOP* based on the assessment by the Land Price Appraisal Team, which is appointed/assigned by the committee.
- b. Selling value of buildings, which are estimated by the local government agencies that responsible for building issues.
- c. Selling value of crops/plants, which are estimated by the local government agencies that responsible for agricultural issues.

(2). In order to determine the basis for calculating the compensation amount, the Bupati/Mayor or Governor of DKI Jakarta will establish a Land Price Appraisal Team/Agency.

11. A new Article is added between Article 18 and 19, which is Article 18A, and is as follows:

“Article 18A

For those whose land rights are dispossessed or delivered and have not agreed on the compensation amount as determined/stated in the Presidential Decree due to the improper amount, they can request for an appeal to Higher Court (*Pengadilan Tinggi*) to get the compensation amount in compliance with Law No. 20/1961 regarding Revoking the Land Rights and objects that are attached to it as well as the Government Regulation No. 39/1973 regarding the Compensation Stipulation Event by

Higher Court in accordance with the Revoking the Land Rights and objects that are attached to it.”

Article II

This Presidential Regulation is valid from the date of its promulgation

Stipulated in Jakarta

On the date June 5, 2006

President of the Republic of Indonesia,

Dr. H. Susilo Bambang Yudhoyono

**Head of National Land Board (BPN)
Republic of Indonesia**

**Regulations of Head of National Land Board (BPN)
Republic of Indonesia
No. 3 Year 2007**

About

Guidelines for Implementation of Presidential Regulation No. 36 year 2005 on Land Procurement for Public Facilities Construction as amended by Presidential Regulation No. 65 year 2006 on the amendment to Presidential Regulation No. 36 year 2005 on Land Procurement for Public Facilities Construction.

Hereby we decided that:

**Chapter I
General Guidelines**

Article 1

In this regulation, unless the context otherwise requires:

1. Government institution is the state agency, Department, non-Departmental Government institution, Provincial government or District/city government.
2. Owner means owner of rights on land, and/or building owner, and/or plantations owner, and/or owners of any objects attached to the land.
3. Land Price/Value Appraisal Agency is a professional and independent agency, which has the skill and capability regarding land price appraisal.
4. Land Price/Value Appraisal Team, which is established under the Decision of Mayor or Governor of DKI Jakarta to do appraisal on the land price if no Land Price Appraisal Agency is available in the pertinent district area/city or surrounding area.

**Chapter II
Planning**

Article 2

1. In order to obtain the land required for public facilities construction, the government institution that needs the land should design a proposal 1 year before at the latest, describing the:
 - a. Goals and objectives of construction
 - b. Place and location of construction
 - c. Required land size/area
 - d. Financing source
 - e. Feasibility analysis of the environment surrounding the construction planning, which must also include the construction impact as well as the prevention and controlling measures against that impact
2. Regarding the proposal design as referred to in sub-article 1, point b and c, the government institution that needs the land may make a request for consideration from the National Land Board, Republic of Indonesia.

Article 3

A proposal on construction planning as referred to in article 2 is not required in the case that public facilities construction is to be used for urgent public safety facilities and disaster handling.

Chapter III **Determination of Location**

Article 4

Based on the proposal on construction planning as referred to in article 2, the government institution that needs the land, will propose the determination of location to the Mayor or Governor of DKI Jakarta with cc to the Head of District/City Land Board.

Article 5

1. After receiving the proposal on determination of location as referred to in article 4, the Mayor or Governor of DKI Jakarta will conduct a review/study on the conformity of construction planning from the aspects listed below:
 - a. Layout
 - b. Land usage management
 - c. Socio-economic factors
 - d. Environment
 - e. Possession, ownership, and land utilization.
2. Implementation of a study on the conformity of construction planning as referred to in sub-article (1), is based on the recommendation from relevant institutions and the City/District Land Office.
3. Based on the recommendation as referred to in sub-article 2, the Mayor or Governor of DKI Jakarta will issue a decision on the determination of location.
4. The decision on the determination of location as referred to in sub-article 3 will be delivered to the government institution that needs the land with cc to the City/District Land Office and also to other relevant institutions.
5. For the government institution that needs the land, the decision on the determination of location as referred to in sub-article 3 is also valid as the license for obtaining/procuring the land.

Article 6

1. The decision on determination of location as referred to in Article 5 sub-article (3) is given for the period as below:
 - a. 1 year period, for procurement of 25 ha square land
 - b. 2 year period, for procurement of more than 25 ha square land
 - c. 3 year period, for procurement of more than 50 ha square land.
2. In the case that during the given period, determination of land location is not completed, but already covers at least 75% of the overall construction planning, the Mayor or Governor of DKI Jakarta can only once, issue an extension for the determination of location period up to a maximum of 1 year.

Article 7

In the case where the recommendation as mentioned in Article 5 sub-article (2) does not conform to the existing Regional or city Spatial Planning, nor is it possible to be implemented within the location as mentioned in Article 2 sub-article (1), the Mayor or Governor of DKI Jakarta will suggest on another area/location for construction to the government institution that needs the land.

Article 8

After receiving the decision on determination of location, the government institution that needs the land is obliged to disclose the construction planning for public facilities to the people within 14 days at most, through socialization, of which types are as follows:

- a. Direct
- b. Indirect, using printed media, electronic media, or others.

Article 9

When a land location has been determined as the location for public facilities construction, then a third party who wants to obtain the land in that specific location will be obliged to get a written license/permission from Mayor or Governor of DKI Jakarta.

Article 10

Permission to acquire/procure the land as mentioned in Article 9, is not necessary under the condition that the land is acquired/procured by reasons of inheritance, legally bound by court decision or order by law.

Article 11

1. Application for determination of location, located in 2 cities/districts or more within 1 province, should be proposed to the Governor.
2. Application for determination of location, located in 2 provinces or more, should be proposed to the National Land Board, Republic of Indonesia

Article 12

The guidance on determination of location as referred to in Article 4 to Article 7 is also valid for finalization of location, which is under the authority of the Governor for adjustments to the environment within the provincial level.

Article 13

Guidance on finalization of location as referred in Article 4 to Article 7 is also valid for finalization of location, which is under the authority of the National Land Board, Republic of Indonesia.

Chapter IV **Land Procurement Guidelines**

Section 1 **For more than 1 ha square of land**

Paragraph 1 **Establishment of Land Procurement Committee**

Article 14

1. In regards to land procurement for public facilities construction as referred to in Article 5 of Presidential Regulation No. 36/ 2005 as amended by Presidential Regulation No. 65/ 2006, a City/District Land Procurement Committee (CLPC) will be established under the decision of the City Mayor or Governor of DKI Jakarta.
2. City/District Land Procurement Committee should consist of 9 persons at most, which structure is as below:
 - a. District Secretary as both Head and Member
 - b. Functionary from local government at the level of Echelon II as the Vice Head and Member

- c. Head of City/District Land Office or any functionary appointed as the Secretary and Member
 - d. Head of Agency/Office/Board in City/District level, related to the implementation of land procurement or any functionary appointed, as Member.
3. The tasks of City/District Land Procurement Committee as referred to in sub-article (1), are as follows:
- a. Provide explanation or socialization to the people.
 - b. Conduct research and inventory survey on land, buildings, plantations, and any other objects related/attached to the land, of which rights are to be dispossessed or delivered.
 - c. Conduct research on the legal status of land, of which rights are to dispossessed, as well as the supporting documents.
 - d. Announce the results from research and inventory survey as referred to in b and c above.
 - e. Receive the appraisal results on land, buildings, plantations, and any other objects related/attached to the land, from the Land Value/Price Appraisal Team and any functionary responsible to conduct appraisal on the buildings and/or plantations and/or any other objects attached to the land.
 - f. Conduct deliberations with the owners and the government institution that needs the land in order to determine the form and/or amount of compensation.
 - g. Determine the amount of compensation for the land, of which rights are to be dispossessed.
 - h. Witness the process of compensation delivery to the landowners.
 - i. Make an official report on the dispossession or delivery of rights.
 - j. Administer and document all land procurement-related documents and submit them to the government institution that needs the land and also the City/District Land Office.
 - k. In the case that no agreement is achieved from the deliberations, the committee should report/deliver the problems raised as well as several proposed solutions regarding land procurement to the Mayor or Governor of DKI Jakarta.
4. Secretariat for the City/District Land Procurement Committee is located in the City/District Land Office.

Article 15

- 1. In the case that the land needed for public facilities construction is located in 2 cities or more within 1 province, a Provincial Land Procurement Committee will be established through Governor Decision.
- 2. Provincial Land Procurement Committee should consist of 9 persons at most, which structure is as below:
 - a. Provincial secretary as both Head and Member
 - b. Functionary from Provincial Government at the same level as Echelon II as the Vice Head and Member
 - c. Head of regional office of Provincial National Land Board or any functionary appointed as Secretary and Member
 - d. Head of Agency/Office/Board in Provincial level, related to the implementation of land procurement or any functionary appointed as Member.
- 3. The tasks of Provincial Land Procurement Committee as referred to in sub-article (1), are as follows:
 - a. Give explanations, guidelines, and development for the implementation of land procurement at city/district level.
 - b. Coordinate and synchronize the implementation of land procurement at city/district level.

- c. Provide considerations to the Governor for the purpose of decision making regarding the form and amount of compensation, proposed by the Mayor.
 - d. Conduct supervision and control upon the implementation of land procurement in city/district level.
4. Secretariat of Provincial Land Procurement Committee is located in the regional office of the Provincial-Level National Land Board.

Article 16

1. In the case that land needed for construction is located in 2 provinces or more, a National Land Procurement Committee will be established with the decision of Minister of Domestic Affairs.
2. National Land Procurement Committee should consist of 9 persons at most, which structure is as below:
 - a. General secretary at Department of Domestic Affairs as both Head and Member
 - b. Functionary Echelon I at Department of Public Work as Vice Head and Member
 - c. Functionary Echelon I at National Land Board Republic of Indonesia as Secretary and Member
 - d. Director of General/Assistant of Minister/Deputy at a related institution to implementation of land procurement as Member
 - e. Governor or any functionary appointed at the same level as Echelon II as Member
 - f. The Mayor or any functionary appointed at the same level as Echelon II as Member.
3. The tasks of National Land Procurement Committee as referred to in sub-article (1), are as follows:
 - a. Give explanations, guidelines, and development for the implementation of land procurement at provincial and/or at city/municipal level.
 - b. Coordinate and synchronize the implementation of land procurement at provincial and/or at city/municipal level.
 - c. Determining and/or appointing the city/municipal level Land Procurement Committee to execute the duty of land procurement in each of city/municipal levels.
 - d. Provide considerations to the Minister of Domestic Affairs and Head of National Land Board of the Republic of Indonesia for the purpose of decision making regarding the form and amount of compensation, proposed by the Mayor or Governor.
 - e. Conduct supervision and control upon the implementation of land procurement at provincial and/or at city/municipal level.
4. Secretariat of National Land Procurement Committee is located in the Head office of the National Land Board of the Republic of Indonesia in Jakarta.

Article 17

1. For land acquisition for the purpose of public facilities construction as a unity within one budget year or multi-years of budget, it will be sufficient to establish one City/District Land Procurement Committee to conduct it.
2. In the case that there is more than 1 type of public facilities construction within 1 year of budget period, the Mayor or Governor of DKI Jakarta will establish 1 or more City/District Land Procurement Committee(s).

Article 18

Land procurement in one city/district or 2 or more in one province or more will be conducted by Land Procurement Committee according to the duty and scope of the area, as referred to Article 15, sub-article (3) and Article 16, sub-article (3).

Paragraph 2
Counseling

Article 19

1. City/District Land Procurement Committee together with the government institution that needs the land will conduct public counseling for the people to explain the benefits, objectives, and goals of construction and also in order to get approval/readiness from the owners.
2. Public counseling will be held in the location as determined in the invitation made by City/District Land Procurement Committee, and the implementation will be guided by the City/District Land Procurement Committee.
3. In the case that the counseling as referred to in sub-article 1 above:
 - a. Is accepted by people, land procurement activities shall proceed.
 - b. Is not accepted by people, the City/District Land Procurement Committee should do re-counseling.
4. In the case that the counseling, as mentioned above in sub-article 3, point b:
 - a. Is not accepted by 75% of all landowners, while the construction location can be relocated, then the government institution that needs the land, must propose other alternative locations.
 - b. Is not accepted by the people, while the construction location cannot be relocated to another location as mentioned in Article 39, then the City/District Land Procurement Committee will suggest to the Mayor or Governor of DKI Jakarta to refer to Law No. 20/1961 about Dispossession of Rights on Land and Objects on it.
5. The result of counseling activities should be written/recorded in the Official Report of Counseling Result.

Paragraph 3
Identification and Inventory Survey (Inventory Listing)

Article 20

1. In the case that people accept the construction planning as referred to in Article 19 sub-article 3, point a, the City/District Land Procurement Committee shall conduct the identification and inventory survey (listing) of land possession, utilization, and ownership of land and/or buildings and/or plantations and/or other objects attached to the land.
2. Identification and inventory survey as referred to in sub-article 1 will include:
 - a. Definition of boundary (of land)
 - b. Measurement of land lot and/or building
 - c. Mapping of land lot and/or building and the boundary of land area
 - d. Determine the land marks and/or buildings
 - e. List the usage and utilization of land
 - f. List the status of land and/or buildings
 - g. List the possession and ownership of land and/or buildings and/or plantations
 - h. List the documents/proofs on possession and ownership of land and/or buildings and/or plantations
 - i. Other things considered necessary.

Article 21

1. In the case that the identification and inventory survey cannot be effectively implemented by the City/District Land Procurement Committee, working units can be established in order to support the City/District Land Procurement Committee.
2. Working units as referred to in sub-article 1 above are to be established and defined by City/District Land Procurement Committee.
3. Results from the identification and inventory survey, done by the working units as referred to in sub-article 1, are to be the responsibility of the City/District Land Procurement Committee.

Article 22

In the case that the identification and inventory survey as referred to in article 20 sub-article 2 is required to be done by the working units as referred to in article 21 sub-article 1; consequently the selection of working units will be based on the conformity between skills of the working unit and tasks they have to do.

Article 23

1. The result of the identification and inventory survey as referred to in article 20 sub-article 2, point b and c, will be written/recorded in the form of Land Area Mapping.
2. The result of the identification and inventory survey as referred to in article 20 sub-article 2, point e to h, will be written/recorded in the form of a List, which includes:
 - a. Name of the entitled land owner
 - b. Status of the land and the necessary documentation
 - c. Land acreage
 - d. Ownership and/or possession of land and/or buildings and/or plantations and/or other objects attached to the land
 - e. Usage and utilization of land
 - f. Imposition of rights on land
 - g. Other remarks.
3. Land Area Mapping and the List, as referred to in sub-article 1 and 2, will be announced/published by the City/District Land Procurement Committee (CLPC) in the district office, the city/district Land Office, through the website for 7 days, and/or through mass media in at least two editions/publications in order to provide opportunity for related parties to propose their objections.
4. If any objections occur, the CLPC will investigate and assess the objections. And if:
 - a. Objections are accountable, the CLPC will do correction/revision as is necessary.
 - b. Objections are unaccountable, the CLPC shall proceed with the land procurement process.
5. If the objections as referred to in sub-article 4, are related to ownership dispute and or possession/utilizations of land and/or buildings and/or other objects attached to the land, the CLPC will strive for settlement through deliberations.
6. In the case that the deliberations as referred to in sub-article (5) do not produce any solutions, the CLPC will suggest that all parties should settle through a judicial institution and record that dispute or case in the Land Area Mapping and the List as referred to in sub-article 1 and 2.
7. After the case/dispute as referred to in sub-article 2 is recorded, the CLPC can proceed with the land procurement process.

Article 24

After the period of announcement as referred to in Article 23 sub-article has ended, the Map and List as referred to in Article 23 sub-article 1 and 2 are to be legalized by all members of

the City/District Land Procurement Committee, acknowledged by the Head of City/District Land Office, the Head of Village and Sub-District, and/or any other construction and/or building-related functionary.

Paragraph 4
Appointment of Land Value Appraisal Agency/Team

Article 25

1. The CLPC will appoint a Land Value Appraisal Agency as stipulated by the City Mayor or Governor of DKI Jakarta to do an appraisal on the land value/price.
2. The Land Value Appraisal Agency as referred to in sub-article 1, is an agency with a license from the National Land Board of the Republic of Indonesia.

Article 26

1. In the case of the absence of a Land Value/Price Appraisal Agency in or around the city as referred to in Article 25, then the City Mayor or Governor of DKI Jakarta will establish the Land Value/Price Appraisal Team.
2. The membership composition of the Land Value Appraisal Team as referred to in sub-article 1, is as below:
 - a. An agent from an institution responsible for buildings and/or plantations
 - b. An agent from the central government responsible for National Land
 - c. An agent from an institution of Land and Building Tax Service
 - d. Experts or persons with experience as land value appraisers
 - e. An academican with the ability to conduct appraisal on land and/or building and/or plantations and/or other objects attached to the land.
3. Organizational structure of Land Price Appraisal Team as referred to in sub-article 2 is subject to additional agent from Society Innate Institution as necessary.

Paragraph 5
Appraisal

Article 27

An appraisal of the price of construction-affected land for the purpose of public facilities construction is conducted by the Land Price Appraisal Agency or the Land Price Appraisal Team.

Article 28

1. Land value appraisal will be done by a Land Value Appraisal Team, in the absence of Land Value Appraisal Institution/Agency as referred to in Article 26 sub-article 1.
2. Land Value Appraisal Team as referred to in sub-article 1, will conduct land value appraisal based on the Market Value of Taxed-Object (NJOP) or real/actual value by taking into consideration the NJOP of the current year, as well as based on the variables below:
 - a. Location and area of land
 - b. Land status
 - c. Land entitlement
 - d. Synchronization between land and existing area spatial planning or city planning
 - e. Facilities and infrastructure available
 - f. Any other factors that may have effects on land price/value.

Article 29

The appraisal of the price of buildings and/or plantations and/or other objects attached to the land will be conducted by Head of Agency/Office/Body responsible for buildings and/or plantations and/or other objects attached/related to the land at the city/District level, by referring to the price standard, set by laws and regulations.

Article 30

The appraisal result as referred to in Article 28 and 29, is to be submitted to CLPC, to be used as the basis for deliberations between owners (landowners) and the government institution that needs the land.

Paragraph 6
Deliberations

Article 31

1. The CLPC will set the place and time of deliberations by inviting the government institution that needs the land and owners (landowners) to have deliberations regarding:
 - a. Public interest-facilities construction in that specific location.
 - b. Form and amount of compensation.
2. The invitation as referred to in sub-article 1, must be received by the government institution that needs the land and also the owners, 3 days prior to the day of deliberations at the latest.
3. Deliberations on the form and amount of compensation will refer to:
 - a. Agreement among all parties.
 - b. Appraisal result as referred to in Article 30.
 - c. Due date of construction project completion.

Article 32

1. Basically, deliberations will be done directly and together between the government institution that needs the land and the owners who are already listed in the legalized Map and List, as referred to in Article 24.
2. Deliberations will be chaired by the Head of the CLPC.
3. If the CLPC as referred to in sub-article 2, cannot attend the deliberations, then the deliberations will be chaired by the Vice Head.
4. In the case that land, and/or buildings and/or plantations and/or other objects attached to the land, needed for the constructions is:
 - a. The object of dispute in court, then deliberations are to be done by all disputing parties.
 - b. A collectively owned right, then deliberations are to be done by all right owners.
 - c. A donated property, then deliberations are to be done by the party/parties as regulated in the laws and regulations about donated property.

Article 33

1. In the case that direct, collective, and effective deliberations are not possible to be conducted due to the number of owners, then deliberations can be conducted in steps/phases.
2. In the case that owners are not able to attend neither the direct and collective deliberations as referred to in Article 32 sub article 1 nor the deliberations held in steps/phases as referred to in sub-article 1, then owners can delegate a representative with notarial letter of authority or below hand, which is acknowledged by the Head of the Village or other functionary in the same level and also the Head of the Sub-district.
3. The authorized representative (vested party) as referred to in sub-article 2, on behalf of the entitled owner (who gives the authority) has the authority to decide on giving suggestions, opinions, wants, and accept or refuse the form and/or amount, only if it is stated firmly in the letter of authority.

4. To protect the owner, an authorized representative as referred to in sub-article 3 can only have authorization from one owner.

Article 34

Deliberations on public interest-facilities construction in that specific area/location as referred to in article 31 sub-article 1 point a, are considered as achieving an agreement, if at least 75% of:

- a. Required land area/location for construction is obtained/procured, or
- b. Numbers of owners are agreed on the form and/or amount of compensation.

Article 35

1. In the case that the amount (of owners/land square area) in the deliberations on public facilities construction planning in that specific area is less than 75%, then the CLPC will suggest the government institution who needs the land to relocate to another location.
2. In the case that construction cannot be relocated to another location as the criteria referred to in article 39, then the CLPC will proceed with the land procurement activities.

Article 36

If Land owners who are not yet agreed on the form and/or amount of compensation total 25% of the numbers of owners in the land acquisition area, THE CLPC will try to hold other deliberations until an agreement on the form and/or amount of compensation is achieved.

Article 37

1. Deliberations for determining the form and/or amount of compensation are conducted within the period of 120 calendar days, commencing from the date of invitation for the first deliberations towards/on the construction location which cannot be relocated of which the criteria is as referred to in Article 39.
2. If the construction location cannot be technically or spatially relocated, while the construction planning has been approved by the people as referred to in Article 19 sub-article 3 point a, and an agreement on construction location has also been achieved with as much as 75% as referred to in Article 34, and the time period as mentioned in sub-article 1 is ended, then the government institution that needs the land will give/provide the compensation to the owners and the hand over of the Official Report on Compensation or Report on Offering of Compensation Delivery is to be made.
3. If owners still refuse the compensation delivery, or do not accept the compensation offering, then after 120 days have passed, the CLPC will make a Official Report on Compensation Hand Over.
4. If owners as referred to in sub-article 3 still refuse, then based on the Official Report as mentioned in sub-article 2 and 3, the CLPC will give the order that Government institution that needs the land will deposit/consign the compensation money to the State Court, which has jurisdiction over the land to be used for construction.

Article 38

The CLPC will make the Report on Deliberations Regarding Location for Public Facilities Construction and Decision on the Form and/or Amount of compensation, which must be signed by all members of the CLPC, the government institution that needs the land, and also the owners.

Paragraph 7

Construction Location that Cannot be Relocated

Article 39

The location of construction for public facilities cannot be relocated technically in terms of space to another place or location as referred to in Article 19 sub-article 4 point b, Article 35 sub-article 2, and Article 37 sub-article 1, if:

- a. Necessary historical, climatical, geographical, geological, and topographic aspects cannot be found in other location.
- b. To relocate it to other location will incur further loss, and an extremely higher cost.
- c. That specific construction planning is highly required and the chosen location is the best location that can be found when compared to another location
- d. Not implementing the construction in that location will cause danger in a disaster, which will threaten the safety and security of the population.

Paragraph 8
Decision of the CLPC

Article 40

1. Based on the Report as referred to in Article 37 sub-article 2 and 3, and Article 38, CLPC will issue a decision on form and/or amount of compensation and the Nominative List of Compensation Payment.
2. This Nominative List must include the owner name, deprived or given rights, land/building acreage, numbers of plantations, accepted form and/or amount of compensation, deposited/consigned form and/or amount of compensation, signatures of the owner and project manager from the government institution that needs the land, as well as a member of the CLPC as the witness.
3. The Decision as referred to in sub-article 1, will be delivered to the government institution that needs the land by the CLPC, with cc to the City Mayor or Governor of DKI Jakarta and also the Head of the City/District Level Land Office.
4. In the case that the land needed for construction belongs to a government institution, decision on the form and/or amount of compensation is to be conducted based on the guidelines as regulated in laws and regulations about State Treasury.

Article 41

1. Owners who have objections regarding the decision on form and/or amount of compensation, issued by the CLPC as referred to in Article 40 sub-article 1, can file an objection to the City Mayor or Governor or Minister of Domestic Affairs as to his authority, by also attaching the explanation of the causes and reasons for objections within 14 days at the latest.
2. The City Mayor as to his authority, will give a decision on settlement of owners' objections as referred to in Article 1, within 30 days at the latest.
3. The Governor as to his authority, will provide a decision on the settlement of owners' objections as referred to in sub-article 1, in the case that land procurement for public facilities construction is in the area of DKI Jakarta or land procurement is in 2 or more cities within 1 province within 30 days at the latest.
4. The Minister of Domestic Affairs as to his authority, will provide a decision on the settlement of owners' objections as referred to in sub-article 1, in the case that land procurement for public facilities construction is conducted in 2 or more provinces within 30 days at the latest.
5. The City Mayor or Governor or Minister of Domestic Affairs as to his authority, before providing any decisions on the settlement regarding the form and/or amount of compensation, can ask for consideration or opinions/requests from:
 - a. The owner who proposes an objection or his authorized party
 - b. The CLPC
 - c. The government institution that needs the land.
6. The Decision of the City Mayor or Governor or the Minister of Domestic Affairs that legalize and amend the form and/or amount of compensation will be delivered to owners who propose the objections, the government institution that needs the land, and also the CLPC.

7. The Decision of the City Mayor or Governor or Minister of Domestic Affairs, as referred to in sub-article 6, will be valid as the basis for compensation payment to the owners who file objections.

Article 42

If the settlement effort made by the City Mayor or Governor or Minister of Domestic Affairs is still not accepted by owners, and the construction location cannot be relocated, then the City Mayor or Governor or Minister of Domestic Affairs as to their authority, will propose a suggestion by depriving the owners' rights of land based on Law No. 20 Year 1961 on Dispossession of Rights on Land and other Objects on it.

Paragraph 9 **Compensation Payment**

Article 43

1. Those who are entitled for compensation are:
 - a. Holders of land rights or anyone who entitled to it based on laws and regulations
 - b. *Nazhir* for donated property.
2. In the case that land with usage rights or building leasehold is located on land with ownership rights or land with management rights, the person entitled for compensation will be the ownership right holder or management right holder.
3. Compensation for buildings and/or plantations and/or other objects attached to the land, located on land with usage rights or building leasehold, which is given to the person with ownership rights or management rights, shall be passed on to the owner of the buildings and/or plantations and/or other objects attached to the land.

Article 44

1. Based on the decision on form and/or amount of compensation as referred to in Article 40 sub-article 1 or Article 41 sub-article 6 and 7, the CLPC will order the institution that needs the land to provide the compensation payment to those who are entitled to the compensation as referred to in Article 43 within the period as below:
 - a. 60 days at the latest from the date of decision, if the form is cash compensation.
 - b. As agreed between the owner and the government institution that needs the land if the form is other than cash compensation.
2. In the case that compensation is in the form of cash as referred to in sub-article 1 point a, the CLPC shall invite all parties entitled to compensation to accept the compensation as agreed, in the determined/specified time and place.
3. The invitation for accepting compensation as referred to in sub-article 2, must be received at least 3 days prior to the compensation payment date.

Article 45

Compensation in forms other than cash compensation as referred to in Article 44 sub-article 1, point b, will be given in the form of:

- a. Replacement for land and/or buildings or resettlement, dependent on the owners' wishes and agreed to by the government institution that needs the land.
- b. Other land and/or buildings and/or other facilities with value at least equal to the release donated property, in the case of donated property.
- c. Recognition on public facilities construction or other forms that are beneficial for the wealth of surrounding people, for customary land.
- d. Based on the decision of the authorized officer, for the land of government institutions or Local Government.

Article 46

1. Cash compensation will be paid directly by the government institution that needs the land to the entitled parties as referred to in Article 43, and witnessed by the CLPC.
2. In the case that the person entitled to compensation gives authorization to another person, a letter of authorization has to be made in notarial form and witnessed by 2 witnesses. For remote areas, a letter of authorization is to be made, written, and acknowledged by the Head of Village or someone of the same status and the Head of District.
3. To protect the interests of those entitled to compensation, an authorized person can only receive one authorization from one entitled person for the compensation.

Article 47

1. If, after receiving the invitation as referred to in Article 44 sub-article 2, the person entitled to compensation is absent, the CLPC will re-invite him to accept the compensation payment at the determined/specified time.
2. If the person entitled to compensation is still absent after three official invitations, he is considered as not having any objections regarding the agreed compensation.
3. If the absence of that entitled person as referred to in sub-article 2, is caused by illness, disaster, or other forced conditions, then the government institution that needs the land together with the CLPC will hand over the compensation directly at the owner's location.

Paragraph 10

Compensation Deposit/Consignment

Article 48

1. The CLPC will give an order to the government institution that needs the land to deposit the cash compensation to the State Court of which has jurisdiction over the land location for the construction implementation in the case that:
 - a. The person entitled to compensation as referred to in Article 43 sub-article 1 cannot be traced regarding his existence
 - b. Land, buildings, plantations, and/or other objects attached to the land, are being disputed in the judicial court and a court decision with legal binding power has not yet been obtained.
 - c. Ownership is still being disputed and there is no agreement on settlement yet from all parties.
 - d. Land, buildings, plantations, and/or other objects attached to the land are being confiscated by an authorized party.
2. To be able to deposit the compensation as referred to in sub-article 1 and Article 37 sub-article 4, the government institution that needs the land will send a proposal on stipulation to the Head of State Court of which has jurisdiction over the land location for construction.
3. The proposal regarding the stipulation of deposit as referred to in sub-article 2, will include attachments on:
 - a. Name of the person entitled to compensation whose compensation is being deposited
 - b. Invitation for accepting the compensation payment as referred to in Article 44 sub-article 2.
 - c. Letters as below:
 1. Official Report on Compensation Hand Over as referred to in Article 37 sub-article 2 or 3
 2. Official Report on Deliberations Held on Location for Public Facilities Construction and Stipulation on Form and/or Amount of Compensation as referred to in Article 38
 3. Decision of City Mayor or Governor or Minister of Domestic Affairs as referred to in Article 41 sub-article 2, 3, 4, and 7
 4. Explanations of and legal reasons for the compensation deposit

5. Other letters related to the compensation deposit.

Paragraph 11
Dispossession of Rights

Article 49

Along with the payment and acceptance of cash compensation as referred to in Article 44 sub-article 1 point a:

- a. The government institution that needs the land will make a receipt of compensation payment.
- b. The person entitled to compensation will make a statement of land rights dispossession or delivery of land and/or buildings and/or plantations and/or other objects attached to the land.
- c. CLPC will make an Official Report on Compensation Payment and Land Rights Dispossession or Land Delivery.

Article 50

1. In the case of non-cash compensation, if the person/owner entitled to compensation has already signed the agreement as referred to in Article 44 sub-article 1 point b and Article 45, this will be followed by the signing of statement letter on the rights dispossession/delivery of land and/or delivery of land and/or buildings and/or plantations and/or other objects attached to the land for the interest of the government institution that needs the land.
2. In the case that the land needed for public facilities construction is a donated property (*Wakaf*), then its dispossession/delivery for the government institution that needs the land can be done after obtaining written permission from the authorized Officer or Institution according to the laws and regulations in regards to donated land.

Article 51

1. At the time of drafting the statement letter on the dispossession/delivery of rights of land or delivery of land, the owner entitled to compensation is obliged to deliver/submit the original documents to the CLPC, as stated below:
 - a. Ownership title of land and/or original document of land ownership or possession
 - b. Other official documents/certificates of legal deeds, related to that specific land
 - c. Other official documents related to that specific land
 - d. Statement letter, acknowledged by the local Head of Village or someone of the same status who states that the pertinent land really belongs to that owner/party.
2. If original documents as mentioned in sub-article 1 cannot be found or are lost, the owner entitled to compensation is obliged to attach one or all of:
 - a. A Letter of Information/Explanation from local police.
 - b. An Official Report of *Sumpah*, which is made in front of the Head of the City/District Land Office, for the registered land.
 - c. A Statement Letter, stating that the specific land belongs to him (the owner) and is not being disputed, which is acknowledged by the local Head of Village or someone of the same status.
3. The person entitled to compensation is responsible for all loss and lawsuits regarding the legitimating of the documents as referred to sub-article 1 and 2.

Article 52

According to the statement letter on the dispossession/delivery of land or land delivery as referred to in Article 49, Article 50, and /or Decision of State Court as referred to in Article 48:

- a. The Head of the City/District Land Office will record the deletion of rights on the dispossessed or delivered land in the land book, ownership title, and other general lists of land registration.
- b. In the case that the land being dispossessed/delivered is not yet certified/having ownership title, the land will be recorded by the Head of the City/District Land Office for the original land certificate that the rights of the specific land is being delivered and registered into the land book.
- c. In the case that the land being dispossessed/delivered is not yet certified/having ownership title, the owner will be recorded and stated in the book of administration in the pertinent Village by the local Head of Village by stating that: "Rights on specific Land are being delivered to the Government/Local Government for the Implementation of Public Facilities Construction".

Paragraph 12

Cost

Article 53

1. Cost for land procurement is borne by the government institution that needs the land, and consists of costs for:
 - a. Land measuring and mapping
 - b. Compensation for owners
 - c. CLPC, PLPC, and/or NLPC
 - d. Land Value Appraisal Agency/Land Value Appraisal Team
 - e. Handling of land rights up to issuance of ownership title
 - f. Compensation deposit if necessary
 - g. Separation from owner remaining land area
 - h. Counseling, coordination, consultation, evaluation, supervision, and problem solving
 - i. Other expenses necessary to support the implementation of tasks by the CLPC, PLPC, and/or NLPC.
2. The amount of land procurement cost as referred to in sub-article 1 point c, is based on the regulations as stipulated by the Minister of Finance as referred to in article 7A of Presidential Regulation No. 36 Year 2005 as amended by Presidential Regulation No. 65 Year 2006.

Section Two

For land less than 1 ha acreage (small scale)

Article 54

Land procurement for public facilities construction with less than 1 ha acreage, will be conducted directly by means of a buying and selling mechanism, barter/exchange, or other means as agreed by all parties with or without any assistance from the CLPC.

Article 55

Direct land procurement activity as referred to Article 54, will be conducted according to the status of land to be dispossessed or delivered to the government institution that needs the land.

Article 56

1. In the case that the dispossessed land has an ownership title, then dispossession/delivery of rights on land will be conducted by land right owner by making a statement letter of

land rights dispossession/delivery for the government institution that needs the land, and that related government institution will provide compensation to the rights owner of land.

2. Implementation of rights dispossession/delivery of land as referred to in sub-article 1, will be conducted by all parties in the presence of the Head of the City/District Land Office, or the Land Ownership Title Officer, or the Head of the District as the Land Ownership Title Officer.
3. Compensation hand over will be conducted by the government institution that needs the land to the entitled owner for compensation who had dispossessed/delivered his rights of land based on deliberations as referred to in Article 59.

Article 57

1. In the case that the dispossessed land has no ownership title yet, then delivery of land will be conducted by the landowner by writing a letter of land ownership delivery for the interest of the government institution that needs the land. Accordingly, the pertinent government institution will provide compensation to the landowner.
2. Implementation of land delivery as referred to in sub-article 1, will be conducted by all parties in the presence of the Head of City/District Land Office.
3. Compensation hand over by the government institution that needs the land to the landowner who had delivered his land will be based on the deliberations as referred to in Article 59.

Article 58

1. In the case that the landowner or those who are entitled according to the laws and regulations is different from the owner of buildings and/or plantations and/or other objects attached to the land, then compensation is to be given by government institution that needs the land to the owner of rights or the entitled, according to the regulations, and/or buildings and/or plantation owners and/or other objects attached to the land which is dispossessed to that pertinent government institution.
2. The stipulation on form and/or amount of compensation on buildings and/or plantations and/or other objects will be based on the deliberations between the government institution that needs the land and pertinent owners and by referring to the regulations that regulate the pertinent standard price.

Article 59

1. Form and/or amount of compensation on land procurement is to be directly stipulated based on the deliberations between the government institution that needs the land and owners.
2. Deliberations, as referred to in sub-article 1, can be based on Market Value of Taxed-Object (NJOP) and the real value by taking into consideration the NJOP of current year in that specific location.

Article 60

In the case that land procurement as referred to in Article 54 uses support from the CLPC, then land procurement will be conducted using land procurement guidelines as regulated in Chapter IV, the first section of this regulation.

Chapter V

Land procurement for non-public facilities construction

Article 61

1. Land procurement for non-public facilities construction as referred to in Article 2 sub-article 2 Jo. Article 22 of Presidential Regulation No. 36 Year 2005 as amended by Presidential Regulation No. 65 Year 2006, on Land Procurement for Construction for the Interest of Government Institutions, which are owned by the government or local government, will be conducted directly through selling-buying/trading mechanism, exchanging goods, or other means, which are agreed on by all parties.
2. In the case that land procurement as referred to in sub-article 1 does not utilize the assistance of the CLPC, the guidelines and requirements in Article 55 to Article 59 are also valid .
3. In the case that land procurement as referred to in sub-article 1 utilizes the assistance of the CLPC, land procurement will be conducted based on land procurement guidelines as stated in Chapter IV, Section 1 of this regulation.

Article 62

If, during the land procurement implementation as referred to in Article 61, an agreement on the form and/or amount of compensation is not obtained, the government institution that needs the land will search for another location.

Chapter VI **Arrangement of Rights on Land**

Article 63

1. In the process of land procurement as referred to in Chapter IV and Article 61, the CLPC will file/bundle the documents regarding land procurement for each area of land, which will consist of:
 - a. Proposal of construction planning
 - b. Decision on Determination of Location
 - c. Map of Land Area, List of Land Ownership, and List of Ownership of buildings and/or plantations and/or other objects attached to the land
 - d. Announcement of Map of Land Area, List of owners of rights on land or the entitled based on laws and regulations, and the List of Ownership of buildings and/or plantations and/or other objects attached to the land
 - e. Decision on the form and/or amount of compensation and Nominative List of Compensation Payment
 - f. Invitation for deliberations
 - g. Official Report on the Result/Output of deliberations on the location of construction
 - h. Receipt of payment and reception of compensation
 - i. Receipt of compensation deposit in the High Court
 - j. Letter of Dispossession/Delivery of Rights on Land
 - k. Official Report on Compensation Payment Process
 - l. Letters of ownership, possession, utilization and usage of land, buildings and/or plantations and/or other objects attached to land
 - m. Other related documents.
2. The CLPC will make the Official Report on the Implementation on Land Procurement by attaching documents as referred to in sub-article 1, and submit them to:
 - a. The government institution that needs the land, original documents
 - b. City/District Land Office, transcript of the original document, legalized by the authorized functionary/official
 - c. The holding organization that needs the land, transcript of the original document, legalized by authorized functionary/Official
 - d. City Mayor or Governor of DKI Jakarta, transcript of original document, legalized by the authorized functionary/official.

Article 64

The government institution that needs the land is responsible for:

- a. Securing and maintaining the bundle of land procurement documents
- b. Possessing, securing, and maintaining the land that has been obtained/compensated.

Article 65

1. Official Report on Compensation Payment and Official Report on the result/output of Deliberations on Construction Location and Determination of Form and/or Amount of Compensation are also valid as an authorization of owner of rights on land to the government institution that needs the land to dispossess/deliver the rights on land to deliver the land to become one which is directly possessed/owned by the State/Country.
2. State Land as referred to in sub-article 1 is proposed to be given rights equivalent to those which can be given for the government institution that needs the land.

Article 66

Application of rights on land as referred to in Article 65 sub-article 2, is proposed by the government institution that needs the land to the Head of the City/District Land Office to have it processed according to the laws and regulations.

Chapter VII **Implementation of Physical Construction**

Article 67

1. The implementation of physical construction on the location obtained by the government institution that needs the land, will commence after the dispossession/delivery of rights on land and/or delivery of buildings and/or plantations as referred to in Article 49 and Article 50, or after the deposit of compensation as referred to in Article 48.
2. In the case that compensation for the entitled owner is deposited to the State Court, then the City Mayor or Governor of DKI Jakarta will issue a decision to implement the physical construction.

Chapter VIII **Evaluation and Supervision**

Article 68

1. The Head of the City/District Land Office will provide technical guidance for the implementation of land procurement in their area.
2. The Head of the City/District Land Office will deliver a report on the implementation of land procurement in their area to the the Head of the Regional Office of the National Land Board once every three months during the current year.
3. The Head of the Regional Office of the Provincial National Land Board will make a report on the implementation of land procurement in their area to the Head of the National Land Board of the Republic of Indonesia every semester during the current year.

Article 69

The Head of the Regional Office of the Provincial National Land Board will provide development, guidance, technical instruction, and will conduct an evaluation of the implementation of land procurement in their area.

Chapter IX **Transitory Regulation**

Article 70

In the case of the absence of regulation on Land Procurement as stipulated by the Minister of Finance as referred to in Article 7A Presidential Regulation No. 36 Year 2005 as amended by Presidential Regulation No. 65 Year 2006, then cost will be charged to:

- a. Land Procurement Committee as based on the laws and regulations
- b. Land Value/Price Appraisal Agency as based on the laws and regulations for appraisal service
- c. Land Value/Price Appraisal Team as based on the laws and regulations.

Article 71

1. Land procurement for construction implementation for public facilities as referred to in Article 5 Presidential Regulation No. 36 Year 2005, which was implemented before the validation of Presidential Regulation No. 65 Year 2006, will be implemented based on the previous regulation.
2. Land procurement as referred to in sub-article 1, for which any agreement on the form and/or amount of compensation has not been reached, can proceed based on this regulation.

Chapter X
Closing Regulation

Article 72

1. Tasks and responsibilities of the CLPC will end after the delivery of documents to the government institution that needs the land as referred to in Article 63 sub-article 2.
2. Issues that occur after the end of the land procurement implementation period should not obstruct physical construction as referred to in Article 67.
3. Form and follow up of solving the issues as referred to in sub-article 2 will be done according to the contents of decision on solution to the issues.

Article 73

Completion of possession or usage of land without permission of the entitled owner or authorized person is regulated based on Law No. 51 Prp. Year 1960 on the Prohibition of Land Utilization without Permission from the entitled owner or authorized person.

Article 74

As the validation of this regulation, then Regulation of State Minister of Agrarian Affair/Head of National Land Board No. 1 Year 1994 on Regulation on the Implementation of Presidential Decision No. 55 Year 1993 on Land Procurement for Public Facilities Construction, is no longer valid hereinafter.

Article 75

This regulation is valid as of the validation date (as written below).

Validate in : Jakarta
Date : May 21, 2007.

**LAND ACQUISITION COST
PHASE I CITARUM PROJECT**

Fiskal Year	Package	River	Source of Fund	Land Size (M2)	Land Size (Ha)	Compensation Cost					Total
						Land (Rp)	Plant (Rp)	Building (Rp)	Cemetery (Rp)	Others (Rp)	
1993 - 1994	A	Citarum	Central Government Annual Budget	162,765	0.016	1,127,738,187	59,019,105	72,267,806	2,540,000		1,261,565,098
	B	Citarum	Central Government Annual Budget	93,982	9.398	588,394,125	45,793,574	17,333,270	6,300,000	76,827,271	734,648,240
1994 - 1995	A	Citarum	Central Government Annual Budget	573	0.057	2,865,000	495,250				3,360,250
	B	Citarum	Central Government Annual Budget	95,253	9.525	902,064,604	63,648,450	833,296,732	3,240,000		1,802,249,786
	C	Citarum	Central Government Annual Budget	132,327	13.233	999,893,322	107,270,450	343,023,563	8,160,000	236,039,467	1,694,386,802
1994 - 1995	C	Citarum	Provincial Government Annual Budget	46,719	4.672	499,997,968					499,997,968
1995 - 1996	A	Citarum	Central Government Annual Budget	87	0.009	531,000	16,925				547,925
	B	Citarum	Central Government Annual Budget	772	0.077	21,354,000	45,389,300	118,237,035	9,577,951		194,586,286
	C	Citarum	Central Government Annual Budget	5,119	0.512	44,962,944	1,701,750		2,260,000		48,924,694
	D	Citarum	Central Government Annual Budget	62,597	6.260	899,363,400	49,091,450	1,197,079,641	8,820,000	110,431,800	2,255,966,291
1996 - 1997	C	Citarum	Central Government Annual Budget	527	0.053	17,500,000	3,931,500	47,300,000			77,551,500
	D	Citarum	Central Government Annual Budget	25,688	2.569	774,540,000	23,706,950	959,423,729	16,220,000		1,773,890,679
	E	Citarum	Central Government Annual Budget	37,407.00	3.741	1,312,024,000	33,297,800	384,848,436		224,589,722	1,954,759,958
			Total	501,214	50	7,191,228,550	433,362,504	3,972,810,212	57,117,951	647,888,260	12,302,407,477

**LAND ACQUISITION COST
STAGE II CITARUM PROJECT**

Fiscal Year	Package	River	Sources of Fund	Land Size (M2)	Land Size (Ha)	Compensation Cost					Total
						Land (Rp)	Plant (Rp)	Building (Rp)	Cemetery (Rp)	Others (Rp)	
1996 - 1997	C,D,E	Citarum River	Central Government Annual Budget	63,622	6,362	2,104,064,000	60,936,250	1,391,572,165	25,040,000	224,589,722	3,806,202,137
	I		Provincial Government Annual Budget West Java	1,860	0,186	740,303,623					740,303,623
1997 - 1998	E,D	Citarum River	Central Government Annual Budget	36,640	3,664	1,080,034,100	20,790,500	88,249,745	8,760,000	53,838,374	1,251,672,719
	I	Citarum River	Provincial Government Annual Budget West Java	19,025	1,903	1,529,855,335					1,529,855,335
1998 - 1999	E,I	Citarum River	Central Government Annual Budget	177,331	17,733	2,788,772,621	138,404,550	241,994,964	2,000,000		3,171,172,135
	II	Cisangkuy River	Central Government Annual Budget	28,092	2,809	759,148,888	64,876,500	310,483,076			1,134,508,464
1999 - 2000	B,E,I	Citarum River	Central Government Annual Budget	317,742	31,774	5,641,831,496	237,978,900	463,650,827			6,343,461,223
	II	Cisangkuy River	Central Government Annual Budget	51,275	5,128	2,264,818,445	94,372,000	1,933,614,555	154,980,000	298,435,000	4,746,220,000
2000	I	Citarum River	Central Government Annual Budget	24,240	2,424	870,978,990	25,397,100	574,347,638			1,470,723,728
	II	Cisangkuy River	Central Government Annual Budget	2,037	0,204	76,814,000	7,053,000	89,078,565	40,600,000	77,335,771	290,881,336
2001	E1 & I	Citarum River	Central Government Annual Budget	2,791	0,279	105,271,455	5,910,750	44,479,719	44,496,000		200,157,924
	I	Cikeruh River	Central Government Annual Budget	4,501	0,450	242,268,000	7,839,750	318,357,032			568,464,782
	I	Citarik River	Central Government Annual Budget	10,994	1,099	875,107,500	43,145,500	392,603,381			1,310,856,381
	II	Cisangkuy River	Central Government Annual Budget	16,849	1,685	1,229,435,000	59,412,700	405,550,672	55,872,000	143,492,484	1,893,762,856
2002	I	Citarum River	Central Government Annual Budget	293	0,029	39,560,000	174,000	149,373,670			189,107,670
	I	Cikeruh River	Central Government Annual Budget	84,278	8,428	3,787,035,500	158,149,750	1,397,644,274	226,314,000		5,569,143,524
	II	Cisangkuy River	Central Government Annual Budget	16,627	1,663	2,322,429,000	54,588,975	194,873,490	41,656,000		2,613,547,465
	III	Citarum River	Central Government Annual Budget	46,072	4,607	3,838,527,500	151,809,050	527,514,651	7,874,000		4,525,725,201
	IV	Citarik River	Central Government Annual Budget	49,472	4,947	3,433,341,500	177,308,400	1,970,650,920	11,684,000	382,339,168	5,975,323,988
	I	Cikeruh River	Provincial annual Budget (APBD Tk I West Java)	7,314	0,731	429,863,889	9,240,750	297,161,618		29,450,649	765,716,906
2003	I	Cikeruh River	Central Government Annual Budget	6,440	0,644	212,912,500					212,912,500
	II	Cisangkuy River	Central Government Annual Budget	1,825	0,183	197,902,500	4,188,750	9,762,240	1,524,000		213,377,490
	III	Citarum River	Central Government Annual Budget	137,400	13,740	11,144,614,000	422,709,961	3,258,768,861	68,326,000		14,894,418,822
	IV	Citarik River	Central Government Annual Budget	123,821	12,382	5,992,438,750	188,587,000	3,058,695,038	111,252,000	471,532,980	9,822,505,768
2004	I	Cikeruh River	Central Government Annual Budget	1,810	0,181	82,993,750	1,153,500	24,195,600			108,342,850
	III	Citarum River	Central Government Annual Budget	28,351	2,835	2,211,705,000	60,850,250	356,282,137	182,626,000		2,811,463,387
	IV	Citarik River	Central Government Annual Budget	52,291	5,229	5,203,254,250	38,258,500	865,716,153	71,628,000		6,178,856,903
	IV	Citarum River	Kabupaten Annual Budget (APBD Tk II West Java)	9,694	0,969	1,527,264,000	3,609,000	1,537,752,735			3,068,625,735
	V	Citarik River	Kabupaten Annual Budget (APBD Tk II West Java)	156,535	15,654	8,901,101,250	228,027,000	4,168,489,076	487,172,000	488,966,978	14,273,756,304
	VI	Cisaranen River	Kabupaten Annual Budget (APBD Tk II West Java)	90,255	9,026	9,280,695,500	2,564,692,263	74,922,800	28,912,348	319,055,135	12,268,278,046
2005	I	Cinambo River	Central Government Annual Budget	10,085	1,009	357,156,250					357,156,250
	III	Citarum River	Central Government Annual Budget	135	0,014	17,180,000		3,420,790			20,600,790
	IV	Citarik River	Central Government Annual Budget	3,330	0,333	520,675,000	2,791,750	40,595,909			564,062,659
	V	Citarik River	Central Government Annual Budget	4,730	0,473	177,492,500	10,082,000	64,329,088		55,659,391	307,562,979
	VII	Cisaranen River	Kabupaten Annual Budget (APBD Tk II West Java)	14,198	1,420	1,870,160,000		5,893,600			1,876,053,600
2006	IV	Citarik River	Central Government Annual Budget	17,185	1,719	1,797,667,500	92,264,150	878,388,006			2,768,319,656
	IV	Citarum River	Central Government Annual Budget	151	0,015	19,252,500					19,252,500
	V	Citarik River	Central Government Annual Budget	49,031	4,903	2,611,716,250	99,111,075	1,227,723,705	475,742,000		4,414,293,030
	VI	Cisaranen River	Central Government Annual Budget	137	0,014	46,922,500		206,317,335			253,239,835
	VII	Cisaranen River	Central Government Annual Budget	15,232	1,523	5,025,315,250	15,417,500	1,276,228,029		727,693,578	7,044,654,357
	IV	Citarik River	Central Government Annual Budget (APBN SKPA)	139	0,014	27,800,000					27,800,000
	V	Citarik River	Central Government Annual Budget (APBN SKPA)	3,648	0,365	136,800,000		3,928,860			140,728,860
	VI	Cisaranen River	Central Government Annual Budget (APBN SKPA)	1,631	0,163	261,668,000	1,673,000	240,932,321			504,273,321
	VII	Cisaranen River	Central Government Annual Budget (APBN SKPA)	4,063	0,406	1,117,936,500	26,517,500	1,074,348,831		108,240,785	2,327,043,616
	V	Citarik River	Central Government Annual Budget (APBN PPSA)	21,673	2,167	1,041,817,500	20,456,250	1,745,444,553		126,351,549	2,934,069,852
	VII	Cisaranen River	Kabupaten Annual Budget (APBD Tk II West Java)	1,546	0,155	1,256,125,000	1,267,748,000	5,895,000			2,529,768,000
2007	V	Citarik River	Central Government Annual Budget (APBN PPSA)	229	0,023	10,087,500	7,900,000	2,023,318			20,010,818
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	4,368	0,437	2,055,443,500	3,880,500	806,412,284		109,259,089	2,974,995,373
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	4,603	0,460	2,388,232,500	69,127,131	12,565,276		129,148,093	2,599,073,000
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	10,737	1,074	5,725,994,000	26,633,000	459,751,275	68,573,000	214,402,401	6,495,353,676
	VII	Cisaranen River	Kabupaten Annual Budget (APBN Tk II Kota Bandung)	2,788	0,279	1,294,055,000	2,426,000	38,557,328			1,335,038,328
	V	Citarik River	Central Government Annual Budget (APBN PPSA)	229	0,023	10,087,500	7,900,000	2,023,318			20,010,818
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	4,368	0,437	2,055,443,500	3,880,500	806,412,284		109,259,089	2,974,995,373
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	4,603	0,460	2,388,232,500	69,127,131	12,565,276		129,148,093	2,599,073,000
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	10,737	1,074	5,725,994,000	26,633,000	459,751,275	68,573,000	214,402,401	6,495,353,676
	VII	Cisaranen River	Central Government Annual Budget (APBN PPSA)	10,737	1,074	5,725,994,000	26,633,000	459,751,275	68,573,000	214,402,401	6,495,353,676
			Total	1,759,053	175,905	116,853,597,092	6,583,033,136	33,519,293,263	2,183,604,348	4,412,600,730	163,552,128,569

Sources: River Management Agency 2009 (BBWS 2009)



Preparatory Survey for Upper Citarum Basin Tributaries Flood Management Project

Project Office: Balai Besar Wilayah Sungai Citarum
 Address: c/o Balai Besar Wilayah Sungai Citarum, Jl. Inspeksi Cidurian Bypass Soekarno Hatta Sta.
 5600, Bandung 40292, West Java
 Tel & Fax: +62-(0)2287523116

Aug. 14th, 2010

Minutes of Meeting

Date & Time	Aug. 11 th , 2010 (Wed), 10:00-11:30	
Venue	Ministry of Public Works (Directorate General of Water Resources: DGWR)	
Attendance	DFWR	Mr. Tri Bayu Adi, Mr. Widagdo, etc.
	BBWSC	Mr. Mudjiadi, Mr. Wisnu, etc.
	JICA Survey Team (JST)	Mr. Kato, Mr. Takada, Mr. Sai
Meeting Topics	<ol style="list-style-type: none"> 1. Briefing of the Upper Citarum Basin Tributaries Flood Management Project (UCBTFMP) by Mr. Mudjiadi 2. Presentation for the draft of the LARAP Framework for UCBTFMP by Mr. Sai using Power Point 3. Questions and Answers 4. Others 	

Meeting Summary

No.	Contents
1	The draft of the LARAP framework was prepared through preliminary discussion with the JST and BBWSC. Note that the approval on it by JICA headquarters is an indispensable condition for establishment of the Loan Agreement. It will be highly recommended that the BBWSC will discuss the draft of the LARAP framework with the JICA fact-finding mission which is supposed to visit to Indonesia at the end of this August. (Mr. Sai)
2	“Integrated Citarum Water Resources Management Investment Program: (ICWRMIP)” has been proceeding and is already funded by ADB. Additionally, the LARAP framework and LARAP for the ICWRMIP have also been prepared and approved by ADB. Given that both projects are located in the same Citarum River Basin, it is necessary to ensure the consistency between two LARAP frameworks. (Mr. Widagdo)
3	The draft of the LARAP framework respects the basic policies on the LARAP framework prepared for the ICWRMIP. It was confirmed that there are no considerable differences on the resettlement policies of the two parties (WB and ADB) based on our comparative analysis (see Handout 1). (Mr. Sai)
4	The screening criteria in terms of a decision on “a full” or “a short” LARAP based on the degree of resettlement impacts should be explained in the draft of the LARAP framework. (Mr. Mudjiadi)
5	Let me remind you that the preparation of LARAP will be required even if the number of the Project Affected Persons (PAPs) for the Project is less than 200. A short LARAP will likely be requested in that case. (Mr. Sai)
6	LARAP for the selected sub-project will be prepared based on the LARAP framework. The definition of the term “sub-Project” should be described clearly in the draft of the LARAP framework including the relation with the concept of the “Sector Loan”. (Mr. Mudjiadi)
7	We expect strongly that JICA will support us for LARAP preparation in the form of technical assistance after the approval of the LARAP framework. We recommend Oriental Consultants Co., LTD as a suitable and qualified consulting company for conducting the tasks. (Mr. Mudjiadi)
8	You will probably have a chance to discuss this issue with the JICA FF mission when they come to Indonesia at the end of August. Oriental Consultants Co., LTD is ready to prepare



Preparatory Survey for Upper Citarum Basin Tributaries Flood Management Project

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 5600, Bandung 40292, West Java
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	for the tasks. (Mr. Sai)
9	According to Handout 3 (Tentative Work Schedule), almost one and half years have been allocated for LARAP preparation. I think it is too long. The LARAP preparation period could be shortened by canceling the LARAP updating and by conducting DMS at the same time as the field surveys (IOL, RCS, etc.). (Mr. Mudjiadi)
10	Please insert, " <i>if the local governments relocate PAPs for some other development projects on the part of the project area of the UCBTFMP before its project commencement, the registered PAPs in the process of RAP preparation for UCBTFMP will be excluded from the list of the inventory of loss</i> " into the section "Principle of Project Resettlement Policy". (Mr. Mudjiadi)
11	The Board of Audit of Indonesia (BPKP) and local governments will be important stakeholders in the approval process on the LARAP framework. We should be careful when finalizing the LARAP framework because this is the very first case for the Indonesian government to consider the JICA requirements on an involuntary resettlement policy based on WB O.P.4.12 in the Japanese ODA loan. (Mr. Mudjiadi)

DRAFT

Framework

of

**Land Acquisition and
Resettlement Action Plan**

for

**The Proposed Project
(Rehabilitation of Upper Citarum)**

October 28th 2010

**Directorate General of Water Resources
Ministry of Public Works**

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Abbreviations

ADB	Asian Development Bank
AH	affected household
AP	affected person
BPN	<i>Badan Pertanahan Nasional</i> (National Land Board)
DGWR	Directorate General of Water Resources
DMS	detailed measurement survey
EA	Executing Agency
FLARAP	Framework of Land Acquisition and Resettlement Action Plan
IOL	Inventory of Loss
JBIC	Japan Bank for International Cooperation
LPC	Land Procurement Committee
LRP	Livelihood Restoration Program
NJOP	<i>Nilai Jual Object Pajak</i> (Taxed-Object Selling Value)
PIB	Project Information Booklet
RAP	Resettlement Action Plan
RCS	replacement cost survey
RWG	resettlement working group
SES	socio-economic survey
SPS	Safeguard Policy Statement
WB	World Bank

CHAPTER 1 INTRODUCTION

1.1. Background

The Project aims at contributing to the development of the Indonesian economy and industries through mitigation of flood damage by constructing infrastructure for river improvement to enhance flooding prevention capacity for target residents along tributaries of the Upper Citarum River Basin where serious flood damage has been occurring.

The Project has been designed as a “Sector Loan Project” by collection of sub-projects aimed at minimizing flood damage along the upper tributaries of the Citarum River. Potential sub-projects will be selected based on selection criteria to be established dependent on the result of Surveys.

JICA requested the Directorate General of Water Resources (DGWR) of Ministry of Public Works to prepare the Framework of Land Acquisition and Resettlement Action Plan (FLARAP) because the Sub-project will have the nature and design that, (a) the zone of impact of Sub-Projects cannot be determined, or (b) the zone of impact is known but precise sitting alignments cannot be determined.

The summary of the components of proposed Project is as shown in the below table.

Table 1 Components of Proposed Project by the Survey

Component A	Structural Countermeasures	River improvement of Upper Citarum Tributaries	
		Sub-Project A1: Citarum Upstream	5.45 km
		Sub-Project A2: Cimande	9.50 km
		Sub-Project A3: Cikijing	6.68 km
		Sub-Project A4: Cikeruh Downstream	2.50 km
Component B	Non-Structural Countermeasures	<ul style="list-style-type: none"> - Institutional strengthening for BBWSC - Capacity development for the community against flood disaster 	
Component C	Sediment Control	<ul style="list-style-type: none"> Construction of 5 check dams and 261 small check dams by participatory method at 24 target desa in Cirasea Sub-Watershed Empowerment for the people at the community level - Raising awareness of the necessity for improved environmental management - Raising of the sense of ownership - Emphasizes the use of local resources for peoples' welfare 	

Source: JICA Survey Team

The location of the target area for the Project is as shown in the Figure 1.

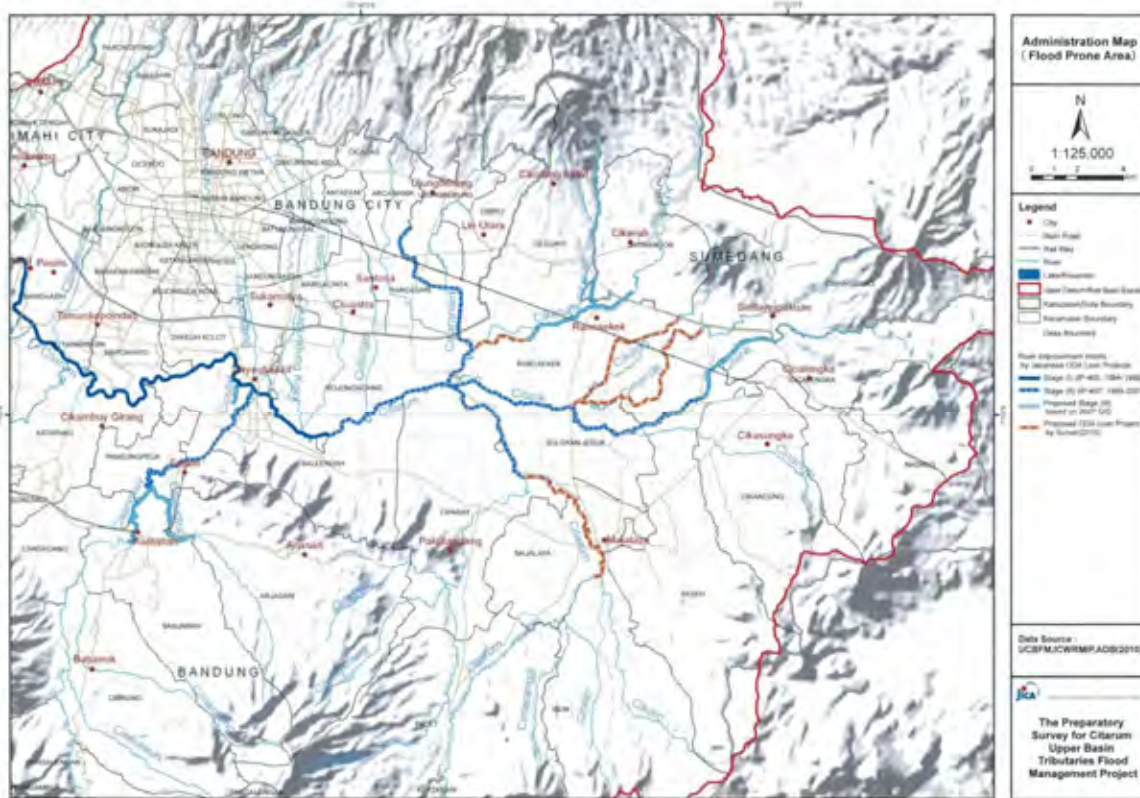


Figure 1 Location of the target area for the Project

The Project Area of 1,771 km² is covered by five administrative districts of 4,906 km² including Bandung City, Cimahi City, Bandung Regency, West Bandung Regency, and Sumedang Regency in West Java Province. Most of the Project Area is concentrated in Bandung City, Bandung Regency, and Cimahi City. The population in the five administrative districts of the Project Area is shown in the below table.

Table 2 Population in the Five Administrative Districts of the Project Area

Administrative District	2005	2006	2007	2008
Bandung City	2,315,895	2,340,624	2,364,312	2,390,120
Bandung Regency	4,263,934	4,399,128	3,038,038	3,116,056
West Bandung Regency	-	-	1,493,225	1,531,072
Sumedang Regency	1,067,361	1,089,889	1,112,336	1,134,288
Cimahi City	493,698	506,250	518,985	532,114
Total	8,140,888	8,335,891	8,526,896	8,703,650

Note: Bandung Barat Regency was established in 2007, and used to be part of Kabupaten Bandung
Source: Statistics of West Java (BPS Jawa Barat), 2009

1.2. Purpose and Scope of the FLARAP

The Directorate General of Water Resources, the Executing Agency (EA), has adopted this Framework of Land Acquisition and Resettlement Action Plan (FLARAP) to assist the EA and Implementing Agencies (BBWSC) to address the adverse resettlement-related impacts of any of the subprojects or components of the Project. Specifically, the FLARAP is intended to guide in the

preparation, implementation and monitoring of subproject or component of Land Acquisition and Resettlement Action Plans (LARAPs).

1.3. Definition of Involuntary Resettlement

Involuntary resettlement addresses social and economic impacts that are permanent or temporary and are (i) caused by acquisition of land and other fixed assets, (ii) by change in the use of land, or (iii) restrictions imposed on land as a result of a JICA operation. An affected household (AH) or person (AP) is one who experiences such impacts.

1.4. Involuntary Resettlement during the Project

The Project would require physical works that will involve displacement of local people from homes and occupied land, including the acquisition of other assets, such as structures and trees. Private properties may have to be acquired for the construction of new facilities and in the implementation of other development components of the Project.

According to the JICA Preparatory Survey for Upper Citarum Basin Tributaries Flood Management Project, the expected area of land required for acquisition and the number of affected houses is summarized as shown in Table 3.

Table 3 Land Acquisition area and Number of House Relocation for the Project

Tributaries	Land Acquisition Area				House Relocation
	Agricultural Land	Residential Area	Idle Space	Total	
Unit	ha				house
Citarum Upstream	9.5	1.9	1.2	12.5	34
Citarik Upstream	12.7	0.5	0.0	13.2	16
Cimande	26.7	4.1	0.7	31.5	16
Cikijing	18.6	2.6	0.0	21.2	40
Cikeruh	12.2	11.3	0.0	23.5	190
Cikeruh (up to 2.5km)	6.9	2.7	0.0	9.6	34
Cibeusi	0.1	3.0	0.0	3.1	46
Cisangkuy Upstream	12.6	1.9	0.0	14.5	25
Citalugtug	6.0	4.7	0.0	10.6	64
Ciputat	2.7	0.1	0.0	2.8	4
Total	101.1	30.1	1.9	133.1	469

Note: Citarik Upstream, Cibeusi and Ciputat are based on 2007 D/D.

Source: The JICA Preparatory Survey for Upper Citarum Basin Tributaries Flood Management Project (the Project),2010

CHAPTER 2 LEGAL AND POLICY FRAMEWORK

2.1. Relevant Laws and Regulations in INDONESIA

2.1.1. Legal Framework

The regulations on land procurement for infrastructure projects, which have been provided by the central government of the Republic of Indonesia, are as follows:

- (1) President Regulation No. 36/2005 on Land Procurement for Implementation of Public Interest
- (2) President Regulation No. 65/2006 on Amendment of President Regulation No. 36/2005
- (3) Head of National Land Board (BPN) Regulation No. 3/2007 on Guidelines for Implementation of President Regulation No. 36/2005 on Land Procurement for Implementation of Public Interest as amended by President Regulation No. 65/2006

2.1.2. Land Procurement Committee

Land procurement for public facilities construction is to be conducted by the City / District Land Procurement Committee under the Mayor/Regent Decision in cases where the land needed for the public facilities is located within a single district. The City/District Land Procurement Committee consists of 9 persons at most as follows (Article 14 of Head of National Land Board (BPN) Regulation No. 3/2007):

- (1) A District Secretary as both Head and Member
- (2) A Functionary from local government as Vice Head and Member
- (3) The Head of the District Land Office or any functionary appointed as Secretary and Member
- (4) A Head of agency/office/board in the city/district level related to the implementation of land procurement or any functionary appointed, as Member.

In cases where the land for public facilities is located in two cities/ districts or more within one province, a Provincial Land Procurement Committee is to be established under the Governor Decision, which consists of 9 persons at most as follows (Article 15 of Head of National Land Board (BPN) Regulation No. 3/2007):

- (1) A Provincial secretary as both Head and Member
- (2) A Functionary from provincial government as Vice Head and Member
- (3) The Head of the Provincial Office of the National Land Board or any functionary appointed as Secretary and Member
- (4) A Head of agency/office/board in the provincial level related to the implementation of land procurement or any functionary appointed as Member.

In order to establish these Land Procurement Committees for the Project, the Project Implementer shall submit a request letter to the Governor and Regent for establishment prior to the commencement of land compensation procedures.

2.1.3. Land Value Appraisal

Land value appraisal is to be done by a Land Value Appraisal Agency that is to be stipulated by Regent/Mayor. In the case of the absence of Land Value Appraisal Agency in or around the respective city / district, Regent / Mayor is to establish a Land Value Appraisal Team, which consists of the following (Articles 25 and 26 of Head of National Land Board (BPN) Regulation No. 3/2007):

- (1) Agent from the institution responsible for building and/or plantations
- (2) Agent from the central government responsible for National Land
- (3) Agent from the institution of Land and Building Tax Service
- (4) Experts or persons with experience in land value appraisal
- (5) Academic person with the ability to conduct appraisals of land, buildings, plantations and/or other objects built on the land.

Land value appraisal is conducted based on Taxed-Object Selling Value (NJOP) or market price by taking into consideration the NJOP price of the current year, as well as the following items (Article 28 of Head of National Land Board (BPN) Regulation No. 3/2007):

- (1) Location and area of land
- (2) Land status
- (3) Land entitlement
- (4) Synchronization between land and existing spatial planning or city planning
- (5) Facilities and infrastructure available
- (6) Any other factors for increasing land price/value.

Appraisal of building and plantation prices is to be done by government staff of the district government that is responsible for buildings and farming/landscaping, respectively (Article 10 of President Regulation No. 65/2006, and Article 29 of Head of National Land Board (BPN) Regulation No. 3/2007).

2.1.4. Land Compensation Procedure

Land compensation including resettlement will be conducted using the following standard procedures facilitated and/or coordinated by the Land Procurement Committee (Article 7 of President Regulation No. 36/2005 as amended by Article 6 of President Regulation No. 65/2006 and Article 14 of Head of National Land Board (BPN) Regulation No. 3 /2007):

- (1) Provide explanations or dissemination to the people (Public Counseling).
- (2) Conduct a research and inventory survey on land, buildings, plantations, and any other objects built on the land, of which rights are to be dispossessed or delivered (Inventory Survey).
- (3) Conduct research on the legal status of land, of which rights are to be dispossessed, as well as supporting documents (Research of Land Status).
- (4) Announce the outcome of the research and inventory survey, as referred to in b and c above, in a document (Announcement of Research and Inventory Results).
- (5) Receive the appraisal results on land from the Land Value Appraisal Agency/Team and government staff responsible for conducting appraisal on the buildings, plantations and/or any other objects built on the land (Land Value Appraisal).
- (6) Conduct a discussion with owners and the project implementer in order to determine the form and amount of compensation (Deliberations on Compensation).
- (7) Determine the amount of compensation on the land in a document, of which rights are to be dispossessed (Determination of Compensation).
- (8) Witness the process of compensation delivery to the landowners (Compensation Payment).
- (9) Make an official report on the dispossession or delivery of the rights (Report Preparation of Dispossession of Land Rights).
- (10) Administer and document all land procurement-related documents and submit them to the Project Implementer who requires the land, and also to the District Land Office (Administration and Documentation of Land Compensation).
- (11) In the case where no agreement is achieved from the discussion, the Land Procurement Committee should report/deliver the problems raised as well as several solution proposals to the Regent (Bupati) of the related district (Decision for Settlement).

The Provincial Land Procurement Committee, on the other hand, is to facilitate/conduct the following tasks (Article 15 of Head of National Land Board (BPN) Regulation No. 3/2007):

- (1) Give explanations and guidelines for the land procurement procedures in the related districts.
- (2) Coordinate and synchronize the land procurement procedures in the two districts.
- (3) Provide considerations to the Governor for the purpose of decision making regarding the form and amount of compensation, proposed by the Mayor (Bupati) of related districts.
- (4) Supervision and control upon the land procurement procedures in the related districts.

2.2. Comparative Analysis with International Practices on Involuntary Resettlement

The “*Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (April 2002)*” has been applied to the Project since the Indonesian government submitted the official request for the Project to Japanese Government before 1st July 2010.

In order to assist BBWSC to prepare FLARAP, the comparative analysis between Indonesian Regulations and international practices including JBIC on involuntary resettlement was conducted.

2.2.1. JBIC guidelines on Involuntary Resettlement

Regarding the involuntary resettlement, the JBIC guidelines for Confirmation of Environmental and Social Considerations (April 2002) indicates following principles.

- Involuntary resettlement and loss of means of livelihood are to be avoided where feasible, exploring all viable alternatives. When, after such examination, it is proved unfeasible, effective measures to minimize impact and to compensate for losses must be agreed upon with the people who will be affected;
- People to be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported by the project proponents, etc. in timely manner. The project proponents, etc. must make efforts to enable the people affected by the project, to improve their standard of living, income opportunities and production levels, or at least to restore them to pre-project levels. Measures to achieve this may include: providing land and monetary compensation for losses (to cover land and property losses), supporting the means for an alternative sustainable livelihood, and providing the expenses necessary for relocation and the re-establishment of a community at relocation sites; and
- Appropriate participation by the people affected and their communities must be promoted in planning, implementation and monitoring of involuntary resettlement plans and measures against the loss of their means of livelihood.

Note that the JICA request to borrower to follow the OP.4.12 of World Bank for addressing individual issues on involuntary resettlement.

The World Bank experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks. The policy includes safeguards to address and mitigate these impoverishment risks. Following are the key principles in the Bank’s policy on involuntary resettlement.

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.
- Displaced persons are provided prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project.
- Resettlement activities should be conceived and executed as sustainable development programs

- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
- The absence of a formal legal title to land is not a bar to WB policy entitlements.
- Particular attention is paid to the needs of vulnerable groups among those displaced, especially those below the poverty line, the landless, the elderly, women and children, indigenous peoples, ethnic minorities, or other displaced persons who may not be protected through national land compensation legislation.
- The full costs of resettlement activities necessary to achieve the objectives of the project are included in the total costs of the project

2.2.2. Comparative Analysis with International Practices on Involuntary Resettlement

There are some gaps between the Indonesian regulations and international practice on Involuntary Resettlement. For example, the Indonesian regulations do not stipulate the preparation of Land Acquisition and Resettlement Action Plan (LARAP). The results of the comparative analysis on Involuntary Resettlement between the Indonesian regulations and Operational policy (OP.4.12) of WB based on the review them is shown in the Table 4.

**Table 4 Comparison Analysis on the Gaps between OP.4.12 and Indonesian Regulation
in terms of “Involuntary Resettlement”**

Issue	Operational Policy 4.12 of WB on Involuntary Resettlement	Indonesian Regulation on Involuntary Resettlement
Preparation of Resettlement Action Plan(RAP)	A resettlement plan or abbreviated resettlement plan is required for all operations that entail involuntary resettlement unless otherwise specified. (OP.4.12 para 17(a))	No stipulation on the obligation of preparation of RAP is found.
Minimization of Involuntary Resettlement	Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs, and where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. (OP.4.12 para 2)	No stipulation for minimization of Involuntary resettlement is found
Impact Covered	(a) the involuntary taking of land resulting in (i) relocation or loss of shelter;(ii) lost of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. (OP.4.12 para 3)	a. Land rights, b. Buildings, c. Crops/Plants. d. Other objectives attached on the land (Article 12 of President Regulation No.36/2005)
Compensation for Squatters	Those who do not have formal legal rights to land but have a claim to such land or assets--provided that such claims are recognized under the laws of the country are provided compensation for the land they lose, and other assistance; and those who have no recognizable legal right or claim to the land and occupy the project	No stipulation on the Compensation for Squatters is found.

Issue	Operational Policy 4.12 of WB on Involuntary Resettlement	Indonesian Regulation on Involuntary Resettlement
	area prior to a cut-off date are provided resettlement assistance. (OP.4.12 para 16)	
Estimation of compensation cost	<p>To provide prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project.</p> <p>In applying this method of valuation, depreciation of structures and assets should not be taken into account.</p> <p>With regard to land and structures, "replacement cost" is defined as follows:</p> <p><u>For agricultural land</u>, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.</p> <p><u>For land in urban areas</u>, it is the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.</p> <p><u>For houses and other structures</u>, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes. (OP.4.12 para 6(a)(ii), O.P 4.12 footnote 11, O.P 4.12 Annex footnote 1)</p>	<p>Land value appraisal is done by Land Value Appraisal Team. Land Value Appraisal Team conducts land value appraisal based on the Selling Value of Taxed-Object (NJOP) or real/actual value by taking into consideration the NJOP of current year, as well as based on below variables:</p> <ul style="list-style-type: none"> - Location and area of land - Land status - Land entitlement - Synchronization between land and existing area spatial planning or city planning; - Facilities and infrastructure available - Any other factors that may have a effects on land price/value. <p>Appraisal of price of building and/or plantations and/or other objects attached to the land is conducted by Head of Agency/Office/Body responsible for building and/or plantations and/or other objects attached/related to the land in city/District level, by referring to the price standard, set by laws and regulations.</p> <p>(Article 28 and 29, Head of National Land Affairs Agency Decree No. 03/2007)</p>
Assistance for Restoration on	Displaced persons should be	No description on assistance for restoration on livelihood and living

Issue	Operational Policy 4.12 of WB on Involuntary Resettlement	Indonesian Regulation on Involuntary Resettlement
Livelihood and Living Standard	(i) offered support after displacement, for a transition period, based on a reasonable estimate of the time likely to be needed to restore their livelihood and standards of living; and (ii) provided with development assistance in addition to compensation measures; (iii) such as land preparation, credit facilities, training, or job opportunities. (OP.4.12 para 6(c))	standard
Paying attention to vulnerable groups	Particular attention is paid to the needs of vulnerable groups among those displaced, especially those below the poverty line, the landless, the elderly, women and children, indigenous peoples, ethnic minorities, or other displaced persons who may not be protected through national land compensation legislation. (OP.4.12 para 8)	No description on consideration of vulnerable groups

Source: JICA Survey Team (2010)

2.3. Policies for the LARAP Framework for THE PROJECT

As mentioned already, the Indonesian regulations do not stipulate the preparation of Land Acquisition and Resettlement Action Plan (LARAP). However, the submission of the LARAP prior to JICA appraisals for project is necessary condition for borrowers. The Project has been designed as a “Sector Loan Project” by collection of sub-projects and the sub-projects will be selected as the results of the Preparatory Survey.

The Projects under Japanese ODA Loan are requested that the Indonesian Government to submit the framework of LARAP to confirm the consistency with the JICA’s basic policies on involuntary resettlement. The LARAP will be prepared based on the FLARAP after determination of the sub-projects for the Project.

2.3.1. Requirement s of JBIC Guidelines on Involuntary Resettlement

JICA request borrowers to prepare the FLARAP with consistency with the basic policy on involuntary resettlement mentioned in the JBIC Guidelines referring the Operational Policy 4.12.of World Bank. There are considerable gaps between the Indonesian regulation and the JBIC guidelines in terms of involuntary resettlement policies as follows.

(1) Impacts Covered

While Indonesian regulation stipulates provision of compensation on only physical aspects such as land, buildings, crop/plants and other objectives attached on the land, the OP.4.12 requests for compensation on the loss of income sources or means of livelihood as well as on those physical aspects.

(2) Estimation of Compensation Cost

The OP.4.12 has policy of providing compensation at full replacement cost without any depreciation and on the other hand in Indonesia, the compensation cost is decided by Land Procurement Committee based on the Selling Value of Taxed-Object (NJOP) or real/actual value by taking into consideration the NJOP of current year.

(3) Squatters

No stipulation on the compensation for squatters is found in the Indonesian regulation and the OP.4.12 stipulates that those who do not have formal legal rights to land are eligible for compensation.

(4) Assistance for Restoration on Livelihood and Living Standard

The OP.4.12 contains the policy of the assistance for restoration on livelihood and living standard for the displaced persons and no description on the issue in the Indonesian regulation.

(5) Paying Attention to Vulnerable Groups

While no description on consideration of vulnerable groups such as those below the poverty line, the landless, the elderly, women and children, indigenous peoples, ethnic minorities etc. in the Indonesian regulation, the OP.4.12 requests to pay attention to those group.

2.3.2. Review on the RAP Framework prepared for the ICWRMIP

It is essential that the LARAP Framework for the Project will be prepared in the form of filling out the gaps between Indonesian regulations and JBIC Guidelines (WB OP.4.12) with “mutually acceptable mechanisms”.

The Integrated Citarum Water Resources Management Investment Program (ICWRMIP) which target area is Citarum River basin was commenced in February 2005 funded by ADB. The program has succeeded to prepare the RAP framework based on “mutually acceptable mechanisms” filling out the gaps between Indonesian regulations and ADB’s resettlement policies.

In order to examine if the framework is applicable to the Project, the RAP Framework prepared for the ICWRMIP was reviewed due to following reasons. The framework was

- Both projects have same target area, Citarum River Basin and they will be implemented by same project proponent, i.e., BBWSC.
- The projects has been supported by international donors(ADB and JICA)

(1) Background

ICWRMIP for the whole Citarum River Basin has been proceeding funded by ADB since February 2005. ICWRMIP has several key areas such as water resources development and management, environmental protection, disaster management, community empowerment etc. The rehabilitation of West Tarum Canal is one of the sub-projects for the key area of water resources development and management. The RAP Framework for ICWRMIP has been prepared to address involuntary resettlement issues arising from the program with the technical assistance (TA) by ADB and the draft of the RAP Framework was approved in August 2008 by ADB.

(2) Livelihood Restoration Program (LRP)

In the RAP Framework, the Livelihood Restoration Program (LRP) which is the Project Resettlement Policy for the ICWRMIP specifically was proposed to fill out the gap between the ADB’s policies and existing Indonesian regulations on involuntary resettlement. The Livelihood Restoration Program is divided into two components: (i) special program and (ii) general program.

The special program under the LRP has allocated an estimated amount to cover any gaps in local government regulation on providing for affected structures, crops and trees, required during relocation. It should be noted that these are estimates only as the actual impacts, costs and level of assistance will

be determined during RAP updating (to be conducted from October 2010).

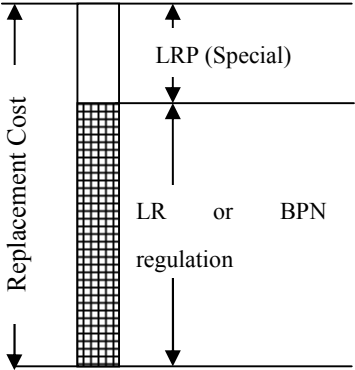
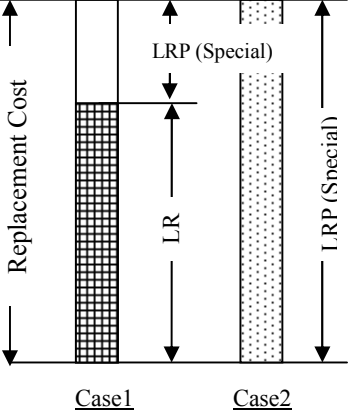
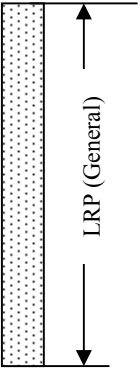
On the general program of the LRP, the Project will also provide suitable livelihood activities under the LRP for the severely affected and vulnerable AHs. The program will be based and designed according to the results of needs assessment to be carried out by the local organization with the AHs during the updating of the RP. In deciding on an appropriate livelihood activities, the following factors will be taken into account: (i) the nature of loss and/or situation of the AH; (ii) preference of the AH, (iii) level of preparedness of the AH to participate in the livelihood activity, and (iv) economics viability of the livelihood activity.

The BBWSC will engage the services of a local NGO or any organization who have expertise in social development and training. Participating AHs will also receive transition subsistence allowance in form of a program for a maximum of 6 months sufficient to provide the minimum basis needs of a household of 5 members. This is also based on the assumption that it will take a maximum of 6 months in order for these AHs to start earning income from the program. It should be noted that the local organization or NGO will review and adjust if necessary depending on the final design of the livelihood activities as per consultation with AHs.

The basic compensation policies applied in the RAP Framework are as follows; (see Table 5).

- In the case that there are local regulations available regarding compensation AHs will be entitled to compensation as stipulated in the existing local government regulation available at the time of implementation.
- In the case that there is no local regulations available regarding compensation, AHs will be entitled to replacement cost as described in the entitlement matrix.
- Any gaps in the local regulation on providing replacement cost compensation will be fulfill in the form of a special program of the Livelihood Restoration Program (LRP).
- “Assistance for restoration on livelihood and living standard” and “Paying attention to vulnerable groups” will be considered in the form of a general program of the Livelihood Restoration Program (LRP).
- Allowances defined in the entitlement matrix may be provided as cash or in kind or alternatively may be provided in the form the LRP (community empowerment program).

Table 5 Basic Compensation Policies Applied in the RAP of ICWRMIP

Compensation Items	Official Dweller	Squatter
Land	The compensation cost for land will be basically determined based on the BPN regulation/bupati or mayor decree with several considerations such as land transaction results in the last 6 month, NJOP as well as market price (Sumedang District experience). Note that the cost will be examined in the process of RAP reparation..	None
Property(Crops, Building)		
Assistance for Restoration on Livelihood and Living Standard	 <p data-bbox="767 1675 1315 1753">The eligibility groups and the amount for LRP (General) will be identified in the RAP Updating.</p>	
Paying attention to vulnerable groups		

- LR : Local Regulation on compensation
- BPN regulation : Compensation cost based on Indonesian Regulation decided by BPN
- LRP (Special) : Special Program for Livelihood Restoration Program:
- LRP (General) : General Program for Livelihood Restoration Program:
- Case1: Local Regulation available

- Case2: Local Regulation not available

Source: JICA Survey Team through interview to RAP consultant for the ICWRMIP

2.3.3. Comparative analysis on the Requirements of WB (OP.4.12) and ADB Policies for Involuntary Resettlement

The comparative analysis on the requirements of WB (OP.4.12) and ADB Policies for involuntary resettlement was conducted to examine the appropriateness to apply the Project Resettlement Policies with Livelihood Restoration Program of the ICWRMIP to the Project. (see Table 6)

Table 6 Comparison Analysis on the Policies in terms of “Involuntary Resettlement” between WB (OP.4.12) and ADB (SPS)

Main Issues	Operational Policy 4.12 of WB on Involuntary Resettlement	Involuntary Resettlement Safeguard of ADB (Safeguard Policy Statement: SPS)
Preparation of Resettlement Action Plan(RAP)	A resettlement plan or abbreviated resettlement plan is required for all operations that entail involuntary resettlement unless otherwise specified. (OP.4.12 para 17(a))	To Prepare a resettlement plan elaborating on displaced persons’ entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.(SPS p 17)
Minimization of Involuntary Resettlement	Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs, and where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. (OP.4.12 para 2)	To avoid involuntary resettlement wherever possible; <u>to minimize involuntary resettlement</u> by exploring project and design alternatives; to enhance, or at least restore, the livelihoods of all displaced persons in real terms relative to pre-project levels; and to improve the standards of living of the displaced poor and other vulnerable groups. (SPS p17)
Impact Covered	The policy covers direct economic and social impacts that both result from Bank assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) lost of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the	The involuntary resettlement safeguards covers physical displacement (relocation, loss of residential land, or loss of shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas. It covers them whether such losses and involuntary restrictions are full or partial, permanent or temporary. (SPS p17)

Main Issues	Operational Policy 4.12 of WB on Involuntary Resettlement	Involuntary Resettlement Safeguard of ADB (Safeguard Policy Statement: SPS)
	displaced persons. (OP.4.12 para 3)	
Compensation for Squatters	Those who do not have formal legal rights to land but have a claim to such land or assets--provided that such claims are recognized under the laws of the country are provided compensation for the land they lose, and other assistance. In addition, those who have no recognizable legal right or claim to the land they are occupying are provided compensation for loss of assets other than land. (OP.4.12 para 15,16)	Ensure that displaced persons without titles to land or any recognizable legal rights to land are eligible for resettlement assistance and compensation for loss of non land assets. (SPS p17)
Estimation of compensation cost	To provide prompt and effective compensation <u>at full replacement cost</u> for losses of assets attributable directly to the project. "Replacement cost" is the method of valuation of assets that helps determine the amount sufficient to replace lost assets and cover transaction costs. In applying this method of valuation, depreciation of structures and assets should not be taken into account. (OP.4.12 para 6(a)(ii), O.P 4.12 footnote 11, O.P 4.12 Annex footnote 1)	Improve, or at least restore, the livelihoods of all displaced persons through (i) land-based resettlement strategies when affected livelihoods are land based where possible or cash compensation <u>at replacement value</u> for land when the loss of land does not undermine livelihoods, (ii) prompt replacement of assets with access to assets of equal or higher value, (iii) prompt compensation <u>at full replacement cost</u> for assets that cannot be restored, and (iv) additional revenues and services through benefit sharing schemes where possible(SPS p17)
Assistance for Restoration on Livelihood and Living Standard	Where necessary to achieve the objectives of the policy, the resettlement plan or resettlement policy framework also include measures to ensure that displaced persons are (i) offered <u>support after displacement</u> , for a transition period, based on a reasonable estimate of the	Provide physically and economically displaced persons with needed assistance, including the following: (i) if there is relocation, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, integration of resettled persons economically and socially into

Main Issues	Operational Policy 4.12 of WB on Involuntary Resettlement	Involuntary Resettlement Safeguard of ADB (Safeguard Policy Statement: SPS)
	<p>time likely to be needed to restore their livelihood and standards of living; and</p> <p>(ii) <u>provided with development assistance</u> in addition to compensation measures;</p> <p>(iii) such as land preparation, credit facilities, training, or job opportunities.</p> <p>(OP.4.12 para 6(c))</p>	<p>their host communities, and extension of project benefits to host communities(SPS p17); (ii) transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) civic infrastructure and community services, as required.</p> <p>(SPS p17)</p>
Paying attention to vulnerable groups	<p>To achieve the objectives of this policy, <u>particular attention is paid to the needs of vulnerable groups</u> among those displaced, especially those below the poverty line, the landless, the elderly, women and children, indigenous peoples, ethnic minorities, or other displaced persons who may not be protected through national land compensation legislation.</p> <p>(OP.4.12 para 8)</p>	<p><u>Improve the standards of living of the displaced poor and other vulnerable groups</u>, including women, to at least national minimum standards. In rural areas provide them with legal and affordable access to land and resources, and in urban areas provide them with appropriate income sources and legal and affordable access to adequate housing.</p> <p>(SPS p17)</p>

Source: JICA Survey Team

2.3.4. Conclusion (The Policies for the FLARAP for the Project)

The JICA Preparatory Survey Team concluded that the preparation of the FLARAP for the Project following the basic policies of the RAP Framework for ICWRMIP is considered as appropriate due to following reasons.

- Both ICWRMIP and the Project are located in the same river basin and have similar project component.
- There are no remarkable differences between the requirements of WB OP.4.12 and ADB policies on involuntary resettlement.
- The Project Resettlement Policy with the Livelihood Restoration Program (LRP) was appropriate as “mutually acceptable mechanisms” to fill out the gap between the JICA’s policies (WB OP.4.12) and existing Indonesian regulations on involuntary resettlement.

CHAPTER 3 OBJECTIVES AND POLICIES of FLARAP

3.1. Objectives

The FLARAP for the the Project has been prepared to support the implementing agency (BBWSC) to set out strategies to mitigate adverse effects and to maintain living standards of those affected by land acquisition and any other resettlement effects. The LARAP will be prepared based on the FLARAP after determination of the sub-projects for the the Project.

3.2. Principles

The basic principles of the FLARAP for the the Project are as follows.

- a) Acquisition of land and other assets, and resettlement of people will be avoided or minimized as much as possible by identifying possible alternative project designs and appropriate social, economic, operation and engineering solutions that have the least impact on populations in the project area.
- b) All AHs residing, working, doing business and/or cultivating land within the project impacted areas as of the date of the latest census and inventory of lost assets(IOL), are entitled to compensation for their lost assets (land and/or non-land assets), at replacement cost and restoration of incomes and businesses, and will be provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, income-earning capacity and production levels. The rehabilitation measures include followings;
 - Training on skill acquisition for job placement
 - Providing micro finance if the AHs will engage in small scale business
- c) All affected people will be eligible for compensation and rehabilitation assistance, irrespective of tenure status, social or economic standing. Lack of legal rights to the assets lost or adversely affected tenure status and social or economic status will not bar the AH from entitlements to such compensation and rehabilitation measures or resettlement objectives.
- d) If the local governments relocate PAPs for some other development projects on the part of the project area of the the Project before its project commencement, the registered PAPs in the process of LARAP preparation for the Project will be excluded from the list of the inventory of loss based on the basic agreement of PAPs.
- e) AHs will be fully consulted and given the opportunity to participate in matters that will have adverse impacts on their lives during the design, implementation and operation of the Project. Plans for the acquisition of assets will be carried out in consultation with the AHs who will receive prior information of the compensation, relocation and other assistance available to them.
- f) Payment for land and/or non-land assets will be based on the principle of replacement cost (local regulations, where available and applicable, shall be fully followed in the implementation

process).The methodologies for calculating the replacement cost are described in the “Chapter 5 LARAP Preparation”.

- g) There shall be effective mechanisms for hearing and resolving grievances during implementation of the land acquisition and resettlement plans.
- h) Special measures will be incorporated in the LARAPs and in complementary mitigation and enhancement activities to protect socially and economically vulnerable groups at high risk of impoverishment, such as ethnic minorities, women-headed families, disabled-headed households, landless households, children and elderly people without support structures, and people living in poverty.
- i) Adequate resources will be identified and committed during land acquisition and resettlement planning by the Executing Agency (DGWR). This includes adequate budgetary support fully committed and made available to cover the costs of land acquisition, compensation, resettlement and rehabilitation within the agreed implementation period for the Project; and, adequate human resources for supervision, liaison and monitoring of land acquisition, resettlement and rehabilitation activities.
- j) The LARAPs summary in the form of a Project Information Booklet (PIB) will be translated into Bahasa and placed in the village offices for the reference of AHs as well as other interested groups. A copy of the RP in the local language will be placed in Project Implementing Agency (BBWSC) and district offices.

3.3. Principle of Replacement Cost

All compensation for affected land and non-land assets owned by households/shop owners who meet the cutoff- date when the latest census and inventory of lost assets (IOL) conducted will be based on the principle of replacement cost and existing government regulations for compensation calculations for building, crops and trees will be used if available. Replacement cost is the amount calculated before displacement which is needed to replace an affected asset as follows:

- a) Existing local government regulations for compensation calculations for building, crops and trees will be used where ever available.
- b) Houses and other related structures based on actual current market prices of affected materials;
- c) Annual crops equivalent to current market value of crops at the time of compensation;
- d) For perennial crops, cash compensation at replacement cost is equivalent to current market value given the type and age at the time of compensation.
- e) For timber trees, cash compensation at replacement cost will be equivalent to current market value for each type and age at the time of compensation based on the diameter at breast height of each tree.

CHAPTER 4 PROJECT ENTITLEMENTS AND IMPLEMENTATION

4.1. Entitlement Matrix

The project entitlements developed and presented in the entitlement matrix correspond to the potential impacts identified during the census and inventory of losses (See Table 7). It should be noted that these entitlements may be revised or enhanced, as necessary, following the conduct of detailed measurement survey (DMS) and consultation with AHs.

Table 7 Entitlement Matrix

No.	Category of Impacts/Losses	Entitled Persons	Project Entitlements	Notes/ Implementation Arrangement
A. Impacts on Land				
1	Permanent loss of paddy/residential/commercial land	who have formal legal rights and customary and traditional rights and those whose claim over the affected land is under application for full title	<ul style="list-style-type: none"> • Cash or in kind compensation at replacement cost which is based on market value that reflect recent land sales and in the absence of such recent sales, based on productive value (for productive/agricultural) or based on similar location attributes (for residential and commercial land 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • Any gaps in the local regulation on providing replacement cost compensation will be fulfill in the form of a special program of the Livelihood Restoration Program (LRP).
2	Temporary loss of paddy/residential/commercial land	who have formal legal rights and customary and traditional rights and those whose claim over the affected land is under application for full title	<ul style="list-style-type: none"> • Payment of rent for residential land based on existing or ongoing rental agreement in the area or as per negotiation with AHs. For productive land, rental will be no less than the net income that would have been derived from the affected property during disruption. • Compensation for affected crops at replacement cost for the duration of the impact, and Land will be restored to pre-project condition or better 	<ul style="list-style-type: none"> • Contractor will be responsible for returning land to pre-project/better condition. • Local regulations, where available and applicable, shall be fully followed in the implementation process.
3	Marginal Impacts due to Permanent Loss of Land Use	Users/Occupants who have no formal legal rights nor customary and traditional rights : Marginal impacts:	<ul style="list-style-type: none"> • No compensation for land, • Compensation for crops and trees based on replacement cost principle 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. Not their main source of income

4	Temporary Loss of Land Use Due to spoil dumping on ex-river bed or due to construction activities	Users/Occupants who have NO formal legal rights nor customary and traditional rights:	<ul style="list-style-type: none"> • No compensation for land, • Compensation for affected crops at replacement cost for the duration of the impact, and • The project will facilitate formal leasing if requested by user/occupant. • The potential identified land will be assessed for any contamination and certified as safe for use. 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • APs to re-use after dredged material has been dumped and assessed for any contamination and certified safe for use. Should the land be deemed unusable AHs will be entitled to livelihood restoration under a LRP • Contractor will be responsible for returning ex-river bed land to preproject/ better condition.
B .Relocation of AHs				
1	Relocation of AHs and Shop Owners due to Permanent Loss of Land Use	who have formal legal rights and customary and traditional rights and those whose claim over the affected land is under application for full title	<ul style="list-style-type: none"> • Compensation for crops and trees based on replacement cost principle • Provision of transport allowance based on actual cost of moving to new site (labor, transport cost) or provision of transport assistance will be provided in the form of program within the LRP. • Provision of transition subsistence allowance will be provided in the form of program within the LRP. • Entitled to participate in Livelihood restoration program 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • The LRP allowance shall be based on poverty threshold for an average 5 household members. A single person household will receive 1/5 of said amount.
2	Relocation of AHs and Shop Owners due to Permanent Loss of Land Use	Informal Dwellers but have other land on Which outside the Project Area	<ul style="list-style-type: none"> • No compensation for land, • Compensation for structures based on replacement cost principle • Compensation for crops and trees based on replacement cost principle • Provision of transport allowance based on actual cost 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • The LRP allowance shall be based on poverty threshold for an average 5 household members. A single person household will receive 1/5 of said amount.

			<p>of moving to new site (labor, transport cost) or provision of transport assistance will be provided in the form of program within the LRP.</p> <ul style="list-style-type: none"> • Provision of Transition subsistence allowance will be provided in the form of program within the LRP. • Entitled to participate in Livelihood restoration program 	
3	Relocation of AHs and Shop Owners due to Permanent Loss of Land Use	Informal Dwellers but have no other land outside the Project Area	<ul style="list-style-type: none"> • No compensation for land • Compensation for structures based on replacement cost principle • Compensation for crops and trees based on replacement cost principle • For house and house-cum-shop, the Project will facilitate to find access to a residential plot (and with commercial advantage for house-cum-shops) within the village or nearby, with affordable renewable lease or lease-to-buy agreement. The area will be with similar or better conditions as before with latrine • For shops, the Project will facilitate to find access to a place/plot to lease/rent with similar commercial advantage either in existing market sites or a plot of land suitable for putting up stalls/shops (new market). Lease arrangement will be with a provision to renew and shall be facilitated by the project. • Provision of transport allowance based on actual cost 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • Individual or small group relocation sites as per AHs' final option. AHs have the option to have a access to a place to rent outside the residential plot that will be facilitated by the PIU. • The Project will assist AHs in the determination of lease amount. • For vulnerable AHs who may not have the ability to generate much income, the LRP will be designed to increase income levels sufficiently to be able to pay the full local market leases. • The LRP allowance shall be based on poverty threshold for an average 5 household members. A single person household will receive 1/5 of said amount.

			<p>of moving to new site (labor, transport cost) or provision of transport assistance will be provided in the form of the LRP.</p> <ul style="list-style-type: none"> • Provision of transition subsistence will be provided in the form of the LRP. • Entitled to participate in Livelihood restoration program. 	
C. Non-Land Assets				
1a	Houses/Shops and Secondary Structures	Owners regardless of whether or not the owner has hak guna bangun (building permit)	<ul style="list-style-type: none"> • Compensation at replacement cost based on actual current market prices of materials and actual cost of labor for demolishing, transfer and rebuild 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • Any gaps in the local regulation on providing replacement cost compensation will be fulfill in the form of a special program of the Livelihood Restoration Program (LRP).
1b		Renters of Structures (house/shops)	<ul style="list-style-type: none"> • Assistance to tenants/renters to find a new place to live or do business • Assistance to find new rental property • Entitled to participate in Livelihood Restoration Program (LRP). 	Local regulations, where available and applicable, shall be fully followed in the implementation process.
2	Public Infrastructure and Facilities	Owner (Government)	<ul style="list-style-type: none"> • Rebuild the facilities based on agreement by both parties. 	
3	Crops and Trees	Owners	<ul style="list-style-type: none"> • Annual Crops: If standing crops are destroyed or cannot be harvested, compensation based on replacement cost principle • Perennial Crops: Compensation based on replacement 	<ul style="list-style-type: none"> • Local regulations, where available and applicable, shall be fully followed in the implementation process. • Any gaps in the local regulation on providing replacement cost compensation will be fulfill in the

			<p>cost</p> <ul style="list-style-type: none"> • Timber Trees: Compensation at current market rates based on type of tree and diameter of trunk at breast height 	<p>form of a special program of the Livelihood Restoration Program (LRP).</p>
D. Income Loss				
1	Significant Impact due to relocation of shops or house-cum-shops	House-cum-shop and shop-owners whether or not with land outside the Project Area	<ul style="list-style-type: none"> • Entitled to participate in the Livelihood Restoration Program (LRP) 	<ul style="list-style-type: none"> • The LRP allowance shall be based on poverty threshold for an average 5 household members. A single person household will receive 1/5 of said amount.
E. High Risk of Impoverishment/Hardship				
1	Due to loss of resource base	Poor and vulnerable Households even if marginally affected	<ul style="list-style-type: none"> • Entitled to participate in the Livelihood Restoration Program and LRP Allowance 	<ul style="list-style-type: none"> • “LRP allowance” will be provided to participants using a poverty threshold for an average 5 household members. A single person household will receive 1/5 of said amount. • AHs are taking part in the program and in the process of restoring their income.
F. Loss of Access				
1	Restricted use of waterway for toilet and laundry purposes and source of HH water		<ul style="list-style-type: none"> • Provision of Communal Sanitary Toilet and Safe water facilities in selected points along the river as included in the project design activities. 	<ul style="list-style-type: none"> • As per consultation with AHs, residents and local government
2	Restricted Access to resources		<ul style="list-style-type: none"> • Community decision making on what resource use shall be restricted and identification of alternative livelihoods to replace the lost resources. 	

			<ul style="list-style-type: none"> Community design of alternative livelihoods to replace the restricted use of resources. 	
G. Impacts During Construction				
1	Non-Land Assets	Owners of affected non land assets	<ul style="list-style-type: none"> Compensation at Replacement Cost as indicated above 	
H. Unexpected Impacts				
1	Unexpected Impacts	-	<ul style="list-style-type: none"> The mitigation measures for unexpected negative impacts caused by involuntary resettlement will be discussed in the detailed design stage. 	

CHAPTER 5 LARAP PREPARATION

5.1. Implementation Arrangements

The Directorate General of Water Resources (DGWR) of the Ministry of Public Works (MPW) will be the Project Executing Agency. And the Citarum River Basin Organization Unit (BBWSC) will be responsible as implementing agency for overall management and coordination of all project activities including the preparation of the LARAP. Note that the necessary actions and responsible agencies for each compensation activity will be described in the LARAP in detail.

The DGWR will approve the LARAP for a particular subproject. Likewise, overall responsibility in ensuring necessary budget for implementation of land acquisition and resettlement based on the approved LARAP rests on the DGWR.

In the Project, the Government bodies that will play a key role in the preparation and implementation of resettlement plans are the Implementing Agencies and the Land Procurement Committee (LPC). For each subproject of the Project that entails involuntary resettlement, the BBWSC will work closely with the Land Procurement Committee to ensure mutually agreeable LARAPs are designed and implemented consistent with the FLARAP.

5.2. Decision on a Full or a Abbreviated LARAP

According to the OP.4.12 of WB, a LARAP is required for all operations that entail involuntary resettlement unless otherwise specified. Note that where impacts on the entire displaced population are minor, or fewer than 200 people are displaced, an abbreviated LARAP may be agreed with the borrower.

5.3. Contents of a Full or Abbreviated LARAP

The scope and level of detail of the LARAP vary with the magnitude and complexity of resettlement. The LARAP covers the elements below, as relevant.

- (1) Description of the project (General description of the project and identification of the project area)
- (2) Potential impacts (including identification of the project component or activities, the zone of impact of such component or activities etc.)
- (3) Alternatives considered to avoid or minimize resettlement in the preliminary design stage
- (4) Objectives
- (5) Socioeconomic studies (The findings of socioeconomic studies)
- (6) Legal framework (The findings of an analysis of the legal framework)
- (7) Institutional Framework (The findings of an analysis of the institutional framework)
- (8) Eligibility (Definition of displaced persons and criteria for determining their eligibility for compensation and other resettlement assistance)
- (9) Valuation of and compensation for losses
- (10) Resettlement measures (A description of the packages of compensation and other resettlement

- measures)
- (11) Site selection, site preparation, and relocation (Alternative relocation sites considered and explanation of those selected)
 - (12) Housing, infrastructure, and social services(Plans to provide housing, infrastructure and social services)
 - (13) Environmental protection and management
 - (14) Community participation (Involvement of resettlers and host communities)
 - (15) Integration with host populations (Measures to mitigate the impact of resettlement on any host communities)
 - (16) Grievance procedures
 - (17) Organizational responsibilities (The organizational framework for implementing resettlement)
 - (18) Implementation schedule
 - (19) Costs and budget
 - (20) Monitoring and evaluation

In case of an abbreviated LARAP it covers the following minimum elements.

- (a) A census survey of displaced persons and valuation of assets;
- (b) Description of compensation and other resettlement assistance to be provided;
- (c) Consultations with displaced people about acceptable alternatives;
- (d) Institutional responsibility for implementation and procedures for grievance redress;
- (e) Arrangements for monitoring and implementation; and
- (f) A timetable and budget.

5.4. Surveys for LARAP Preparation

If resettlement impacts are unavoidable and preparation of a resettlement plan is therefore required, a LARAP will be prepared following detailed design using the following procedures: (See Table 8)

- (1) Undertake a census of all AHs.
- (2) Undertake inventory of all losses of all AHs. At the same time, inform potential AHs (without discrimination) of the subproject, it's likely impacts, and principles and entitlements as per the RF.
- (3) Undertake a socioeconomic survey (SES) of at least 20%~25% of all AHs, 20% of severely affected AHs and ethnic minorities' population.
- (4) Undertake a replacement cost survey for various types of affected assets as a basis for determining compensation rates at replacement cost. Determine the losses in accordance with the entitlement matrix.
- (5) Provide project and resettlement information to all persons affected in a form and language that

are understandable to them, and closely consult them on compensation and resettlement options, including relocation sites and economic rehabilitation.

- (6) Prepare the draft LARAP with time-bound implementation schedule, procedures for grievance mechanism and monitoring and evaluation, and a budget.
- (7) Finalize the subproject LARAP and translate the summary (PIB) in local language.

Table 8 Surveys for LARAP Preparation

<p>Inventory of Loss (IOL) Survey</p>	<p>The census and Inventory of Loss (IOL) Survey of lost assets will collect data on the affected assets from 100% of APs following detailed engineering design. The data collected during the IOL will constitute the formal basis for determining AP entitlements and levels of compensation. For each AP, the scope of the data will include:</p> <ul style="list-style-type: none"> • Total and affected areas of land, by type of land assets; • Total and affected areas of structures, by type of structure (main or secondary); • Legal status of affected land and structure assets, and duration of tenure and ownership; • Quantity and types of affected crops and trees; • Quantity of other losses, e.g., business or other income, jobs or other productive assets; estimated daily net income from informal shops; • Quantity/area of affected common property, community or public assets, by type; • Summary data on AHs, by ethnicity, gender of head of household, household size primary and secondary source of household income viz-a-viz poverty line, income level, whether household is headed by women, elderly, disabled, poor or indigenous peoples; • Identify whether affected land or source of income is primary source of income; and • AP knowledge of the subproject and preferences for compensation and, as required, relocation sites and rehabilitation measures.,
<p>Socioeconomic Survey</p>	<p>At a minimum, the socioeconomic survey (SES) will collect information from a sample of at least 20%~25% of affected people and 20% of severely affected AHs, disaggregated by gender and ethnicity. The purpose of the socioeconomic survey is to provide baseline data on AHs to assess resettlement impacts, and to be sure proposed entitlements are appropriate, and to be used for resettlement monitoring. The scope of data to be collected includes:</p> <ul style="list-style-type: none"> a) Household head: name, sex, age, livelihood or occupation, income, education and ethnicity; b) Household members: number, livelihood or occupation, school age children and school attendance, and literacy, disaggregated by gender; c) Living conditions: access to water, sanitation and energy for cooking and lighting; ownership of durable goods; and d) Access to basic services and facilities.
<p>Replacement Cost Survey</p>	<p>The replacement cost survey (RCS) will be done in parallel with DMS and SES activities by collecting information from both secondary sources and primary sources (direct interviews with people in the affected area, material suppliers, house contractors, local governments), and</p>

	<p>from both those affected and those not affected.</p> <p>The methodology employed in the RCS will include the following:</p> <ol style="list-style-type: none"> a. Conducting bill of materials and bill of quantities survey of typical structures, coupled by a canvass of prices of construction materials and interview with contractors and builders to determine the current cost of labor in the construction business, and come up with the unit cost for each average type of main structures (houses and similar buildings) found in the project area; b. Discussing with government officials involved in land acquisition (such as the LPC) in previous projects to gain insights on various methodologies in calculating compensation rates; c. Meeting with vendors and agriculture specialists, including officials of the Department of Agriculture, to establish the current market rates of perennial and annual crops; and d. Interviewing District, Sub-District, and village officials, including residents, to find out the current market rates of fixed assets, especially land, in the Project area as per record of recent sale transactions. <p>Compensation rates will be continuously updated to ensure that APs receive compensation at replacement cost at the time of compensation payment.</p>
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5.5. Vulnerability, Gender and Ethnicity

Vulnerable AHs are distinct groups of people who might suffer disproportionately or face the risk of being further marginalized by the effects of resettlement. These are female-headed households with dependents, disabled household heads and households falling under the generally accepted indicator for poverty, children and elderly who are landless and with no other means of support, landless households, and ethnic minorities. Particular attention will be given to poor and vulnerable AHs during LARAP preparation and implementation. Separate consultation meetings will be conducted with these households on specific resettlement concerns, such as compensation and entitlements, rehabilitation of livelihoods and relocation as relevant. All public information and consultation meetings will ensure that vulnerable households are present.

With regard to gender strategy, it includes specific activities to ensure project benefits for women as shown below.

- a) Consultation meetings on resettlement activities will be held separately with women, female headed households and elderly women;
- b) The resettlement working group (RWG) will include women representatives from affected households;
- c) At the inception of the Project, a capacity building training program on resettlement activities will be designed for the women and men local officials, and women and men from affected households to orient them about resettlement activities. Participation of poor women, female headed households in the training will be ensured;
- d) The training will include information on resettlement activities, management of cash assistance

- received, grievance procedures and impact of the project on livelihood activities
- e) The capacity building training on resettlement issues will be conducted separately for women including the female-headed households;
 - f) During the conduct of the DMS, men and women from the households will participate in the said activity;
 - g) Livelihood activities will be planned with active involvement of women; need assessment for livelihood activities and skill development of livelihood activities will be conducted separately for women members, poor women, female-headed households, and elderly women;
 - h) Assistance for affected non-land assets and other allowances will be given to both men and women from the households; Specific attention will be provided for the poor women headed households, elderly women in paying the compensation on time and developing suitable livelihood activities for elderly and poor female headed households;
 - i) Separate discussion with women members, female headed households, elderly women, ethnic minority household for selection of relocation sites, housing structure, and other social infrastructures, including timing of relocation;
 - j) Special measures will be taken in the relocation of elderly, disabled and female headed households in terms of location of new site together with their extended families/relatives.
 - k) Disaggregated monitoring indicators by gender will be developed for monitoring of Social benefits, economic opportunities, livelihood program, and resettlement activities.

5.6. Consultation and Information Disclosure

(1) Consultation and Information Disclosure based on Indonesian Regulations

According to the Article 8 of the BPN Regulations (No. 3 Year 2007), after receiving the decision on determination of location, the EA that needs the land is obliged to disclose the construction planning for public facilities to the people within 14 days at most through socialization(directly and/or indirectly such as using printed media, electronic media, or others), While, the Land Procurement Committee(LPC) together with the EA that needs the land will conduct public counseling for the people to explain the benefits, objectives, and goals of construction and also in order to get approval/readiness from the owners. (Article 19 of the BPN Regulations)

The result of identification and inventory survey will be written/recorded in the form of Land Area Mapping. Land Area Mapping and the List will be announced/published by LPC in district office, city/district Land Office, through website for 7 days, and/or through mass media at least in two editions/publications in order to provide opportunity for related parties to propose their objections. (Article 23 of the BPN Regulations)

(2) Information Disclosure for the LARAP

Note that there is no stipulation related information disclosure for the LARAP in the Indonesian Regulations. The draft LARAP will be disclosed to AHs prior to submission to JICA for review. The

EA will disclose (i) draft LARAP ; (ii) final LARAP approved by the EA, and (iii) any revisions to the LARAP as a result of design layout. Key information in the LARAP to be disclosed to the affected households will include (a) compensation, relocation and rehabilitation options, (b) DMS results, (c) detailed asset valuations, (d) entitlements and special provisions, (e) grievance procedures, (f) timing of payments, and (g) displacement schedule. The information will be made publicly available in Project and commune offices and provided to the affected households in the form of a summary LARAP, an information leaflet or brochure.

5.7. Grievance Redress

Grievances related to any aspect of resettlement will be handled through negotiation aimed at achieving consensus within 120 calendar days referring to existing Indonesian regulations. Complaints will pass through 3 stages before they could be elevated to a court of law as a last resort, thus:

(1) First Stage

An aggrieved AH may bring his/her complaint to any member of the RWG or the area coordinator of SES, either in writing or verbally. The complaint will be informed to the Camat (the head of sub-district) through the Village Chief. The Sub-district Chief together with the Village Chief will have 40 calendar days following the lodging of the complaint by the aggrieved AH to act on the case. He/she may call, as needed, any member of the LPC, to help him/her come up with an acceptable resolution of the complaint. The Sub-district government is responsible for documenting and keeping file of all complaints that it handles.

(2) Second Stage

If after 40 calendar days the aggrieved AH does not hear from the Camat or the Desa/Lurah about the complaint, or if the AH is not satisfied with the decision taken by the Camat, the AH may bring the complaint, either in writing or verbally, to the Bupati (Head of Regency or District) or the Walikota (City Mayor). The Bupati or Walikota in turn will have 40 calendar days following the lodging of the complaint by the aggrieved AH to act on the case. He/she may call, as needed, any member of the LPC, to help him/her come up with an acceptable resolution of the complaint. The Kabupaten/Kota (Regency/City Government) is responsible for documenting and keeping file of all complaints that it handles.

(3) Third Stage

If after 40 calendar days the aggrieved AH does not hear from the Kabupaten/Kota, or if the AH is not satisfied with the decision taken by the Bupati or Walikota, the AH may bring the complaint, either in writing or verbally, to the Office of the Provincial Governor. The Governor has 40 calendar days within which to resolve the complaint to the satisfaction of all concerned. The Office of the Governor is responsible for documenting and keeping file of all complaints that reaches the same.

(4) Final Stage, the Court of Law Arbitrates

If after 40 days following the lodging of the complaint, the aggrieved AH does not hear from the Office of the Provincial Governor or if he/she is not satisfied with the decision taken by the Provincial Governor, the complain may be brought to a court of law for adjudication. The rules of court will be followed in the adjudication of the complaint.

5.8. LARAP Preparation by BBWSC

The LARAP for the sub-project will be prepared by BBWSC based on the policies described in the FLARAP. The expected LARAP preparation schedule is shown in the Table 9. The draft of terms of references for LARAP preparation is referred to Appendix V-8).

Table 9 Preliminary Work Schedule for LARAP Preparation

	1st Month			2nd Month			3rd Month			4th Month			5th Month			6th Month			7th Month			8th Month			9th Month			10th Month			11th Month			12th Month		
Procurement of Local Consultant for LARAP preparation	█																																			
Mobilization				█																																
Stakeholder Meeting							█									█						█									█					
Topographic Survey										█			█																							
Socio-eco survey(Census)													█			█			█																	
Inventory of Loss survey(IOL)																			█			█			█											
Replacement cost survey(RCS)																			█			█			█											
Preparation of Draft of LARAP																												█			█			█		

CHAPTER 6 MONITORING

The BBWSC will serve as the Project's internal monitoring body. Quarterly reports will be submitted to the DGWR starting from the commencement of LARAP updating, which coincides with the conduct of the detailed measurement survey and other LARAP updating activities. The DGWR in turn will include updates on resettlement in its regular progress reports to JICA. Social monitoring reports will be made available to the affected households and will be submitted to JICA.

Internal monitoring and supervision will have the following objectives:

- a) Compensation and other entitlements are computed at rates and procedures as provided in the approved LARAP, with no discrimination according to gender, vulnerability, or any other factor;
- b) Affected households are paid their compensation and other entitlements as per approved LARAP, ensuring that all entitlements are delivered as planned and agreed, including compensation in cash or in kind, allowances, replacement land, resettlement sites developed and people moved onto them;
- c) Livelihood restoration programs designed and delivered including modifications in the programs and provision of additional cash and in-kind assistance to the participating affected households as and when necessary;
- d) Public information, public consultation and grievance redress procedures are followed as described in the approved LARAP;
- e) Capacity of AHs to restore/re-establish livelihoods and living standards. Special attention given to severely affected and vulnerable households. Focus will also be given if the objective of improving socio-economic condition of vulnerable households is achieved.
- f) Affected public facilities and infrastructure are restored promptly; and;
- g) The transition between resettlement and commencement of civil works is smooth and that sites are not handed over for civil works until affected households have been satisfactorily compensated and resettled.

DRAFT

Terms of References

for

**Land Acquisition and
Resettlement Action Plan**

on

**The Proposed Project
(Rehabilitation of Upper Citarum)**

October 13th 2010

**Directorate General of Water Resources
Ministry of Public Works**

4. Contents of a Full or Abbreviated LARAP

The scope and level of detail of the LARAP vary with the magnitude and complexity of resettlement. The LARAP covers the elements below, as relevant.

- a) Description of the project (General description of the project and identification of the project area)
- b) Potential impacts (including identification of the project component or activities, the zone of impact of such component or activities etc.)
- c) Alternatives considered to avoid or minimize resettlement in the preliminary design stage
- d) Objectives
- e) Socioeconomic studies (The findings of socioeconomic studies)
- f) Legal framework (The findings of an analysis of the legal framework)
- g) Institutional Framework (The findings of an analysis of the institutional framework)
- h) Eligibility (Definition of displaced persons and criteria for determining their eligibility for compensation and other resettlement assistance)
- i) Valuation of and compensation for losses
- j) Resettlement measures (A description of the packages of compensation and other resettlement measures)
- k) Site selection, site preparation, and relocation (Alternative relocation sites considered and explanation of those selected)
- l) Housing, infrastructure, and social services(Plans to provide housing, infrastructure and social services)
- m) Environmental protection and management
- n) Community participation (Involvement of resettlers and host communities)
- o) Integration with host populations (Measures to mitigate the impact of resettlement on any host communities)
- p) Grievance procedures
- q) Organizational responsibilities (The organizational framework for implementing resettlement)
- r) Implementation schedule
- s) Costs and budget
- t) Monitoring and evaluation

In case of an abbreviated LARAP it covers the following minimum elements.

- (a) A census survey of displaced persons and valuation of assets;
- (b) Description of compensation and other resettlement assistance to be provided;
- (c) Consultations with displaced people about acceptable alternatives;
- (d) Institutional responsibility for implementation and procedures for grievance redress;
- (e) Arrangements for monitoring and implementation; and
- (f) A timetable and budget.

5. Tasks

The LARAP will be prepared using the following procedures:

- (1). Conduct topographic survey on the Project ROW (refer to the results of the JICA Preparatory Survey for Upper Citarum Basin Tributaries Flood Management Project: October 2010). Note that every affected properties including buildings, crops and trees inside the ROW should be plotted.
- (2). Undertake a census of all APs.
- (3). Undertake inventory of all losses of all APs. At the same time, inform potential APs (without discrimination) of the subproject, it's likely impacts, and principles and entitlements as per the Resettlement Framework.

- (4). Undertake a replacement cost survey for various types of affected assets as a basis for determining compensation rates at replacement cost. Determine the losses in accordance with the entitlement matrix.
- (5). Provide project and resettlement information to all persons affected in a form and language that are understandable to them, and closely consult them on compensation and resettlement options, including relocation sites and economic rehabilitation.
- (6). Prepare the draft LARAP with time-bound implementation schedule, procedures for grievance mechanism and monitoring and evaluation, and a budget.
- (7). Finalize the subproject RP and translate the summary (PIB) in local language.
- (8). Disclose the draft and final LARAP in accordance with JICA's policy on public communications to the affected communities. The draft LARAP will be disclosed to AHs by the EA prior to submission to JICA . The final LARRAP will be also disclosed.

Table 1 Surveys for LARAP Preparation

Census and Inventory of Loss (IOL) Survey	<p>The census and Inventory of Loss (IOL) Survey of lost assets will collect data on the affected assets from 100% of APs following detailed engineering design. The data collected during the IOL will constitute the formal basis for determining AP entitlements and levels of compensation. For each AP, the scope of the data will include:</p> <ul style="list-style-type: none"> ● Total and affected areas of land, by type of land assets; ● Total and affected areas of structures, by type of structure (main or secondary); ● Legal status of affected land and structure assets, and duration of tenure and ownership; ● Quantity and types of affected crops and trees; ● Quantity of other losses, e.g., business or other income, jobs or other productive assets; estimated daily net income from informal shops; ● Quantity/area of affected common property, community or public assets, by type; ● Summary data on AHs, by ethnicity, gender of head of household, household size primary and secondary source of household income viz-a-viz poverty line, income level, whether household is headed by women, elderly, disabled, poor or indigenous peoples; ● Identify whether affected land or source of income is primary source of income; and ● AP knowledge of the subproject and preferences for compensation and, as required, relocation sites and rehabilitation measures.
Socioeconomic Survey	<p>At a minimum, the socioeconomic survey (SES) will collect information from a sample of at least 20% ~25% of affected people and 20% of severely affected AHs, disaggregated by gender and ethnicity. The purpose of the socioeconomic survey is to provide baseline data on AHs to assess resettlement impacts, and to be sure proposed entitlements are appropriate, and to be used for resettlement monitoring. The scope of data to be collected includes:</p> <ol style="list-style-type: none"> a) Household head: name, sex, age, livelihood or occupation, income, education and ethnicity; b) Household members: number, livelihood or occupation, school age children and school attendance, and literacy, disaggregated by gender; c) Living conditions: access to water, sanitation and energy for cooking and lighting; ownership of durable goods; and <p>Access to basic services and facilities.</p>

<p>Replacement Cost Survey</p>	<p>The replacement cost survey (RCS) will be done in parallel with Census and IOL activities by collecting information from both secondary sources and primary sources (direct interviews with people in the affected area, material suppliers, house contractors, local governments), and from both those affected and those not affected.</p> <p>The methodology employed in the RCS will include the following:</p> <ol style="list-style-type: none"> Conducting bill of materials and bill of quantities survey of typical structures, coupled by a canvass of prices of construction materials and interview with contractors and builders to determine the current cost of labor in the construction business, and come up with the unit cost for each average type of main structures (houses and similar buildings) found in the project area; Discussing with government officials involved in land acquisition (such as the LPC) in previous projects to gain insights on various methodologies in calculating compensation rates; Meeting with vendors and agriculture specialists, including officials of the Department of Agriculture, to establish the current market rates of perennial and annual crops; and Interviewing District, Sub-District, and village officials, including residents, to find out the current market rates of fixed assets, especially land, in the Project area as per record of recent sale transactions. <p>Compensation rates will be continuously updated to ensure that APs receive compensation at replacement cost at the time of compensation payment.</p>
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6. Expected Organization of the LARAP Preparation Team

The LARAP preparation team should consist of at least the following twenty people:

- One (1) Team Leader who is responsible for supervising of the field surveys, supporting PIU on socialization and preparation of the draft of the RAP.
- One (1) Sub-team leader who assists the team leader
- Three (3) field survey team leader on Census, IOL and Replacement cost survey respectively.
- Three (3) enumerators for each field survey
- Twelve (12) surveyors for three field surveys (four persons for each survey).

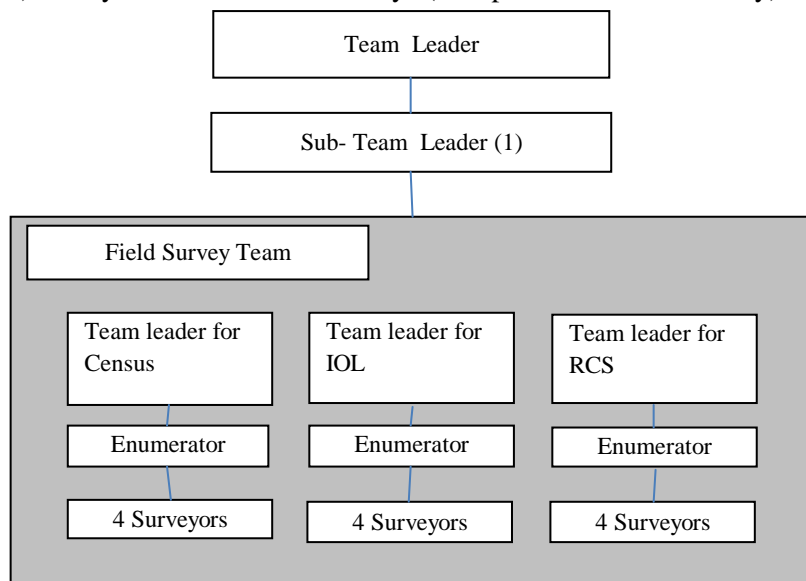


Figure 2 Expected Organization of the LARAP Preparation Team

Note that the actual team structure for the LARAP preparation for the each sub-project should be proposed to obtain the approval by the DGWR.

7. Schedule

Tentative work schedule for LARAP preparation is shown in the figure below.

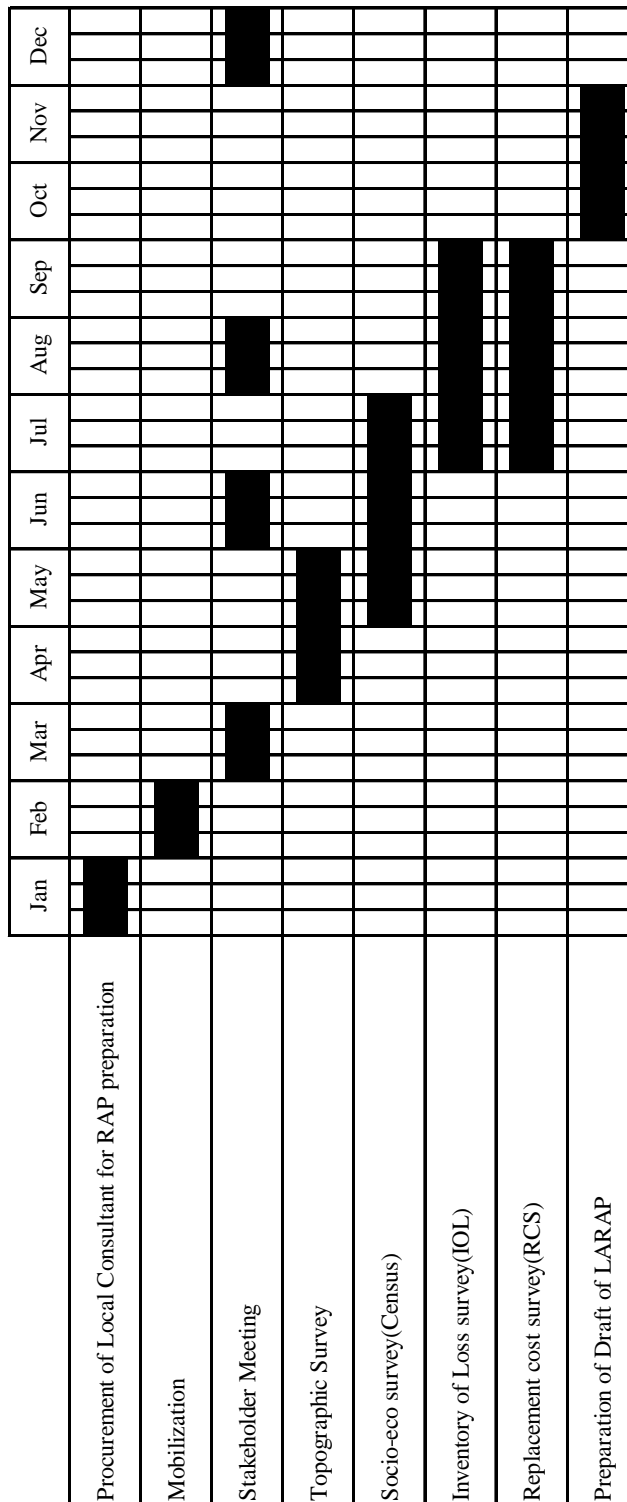
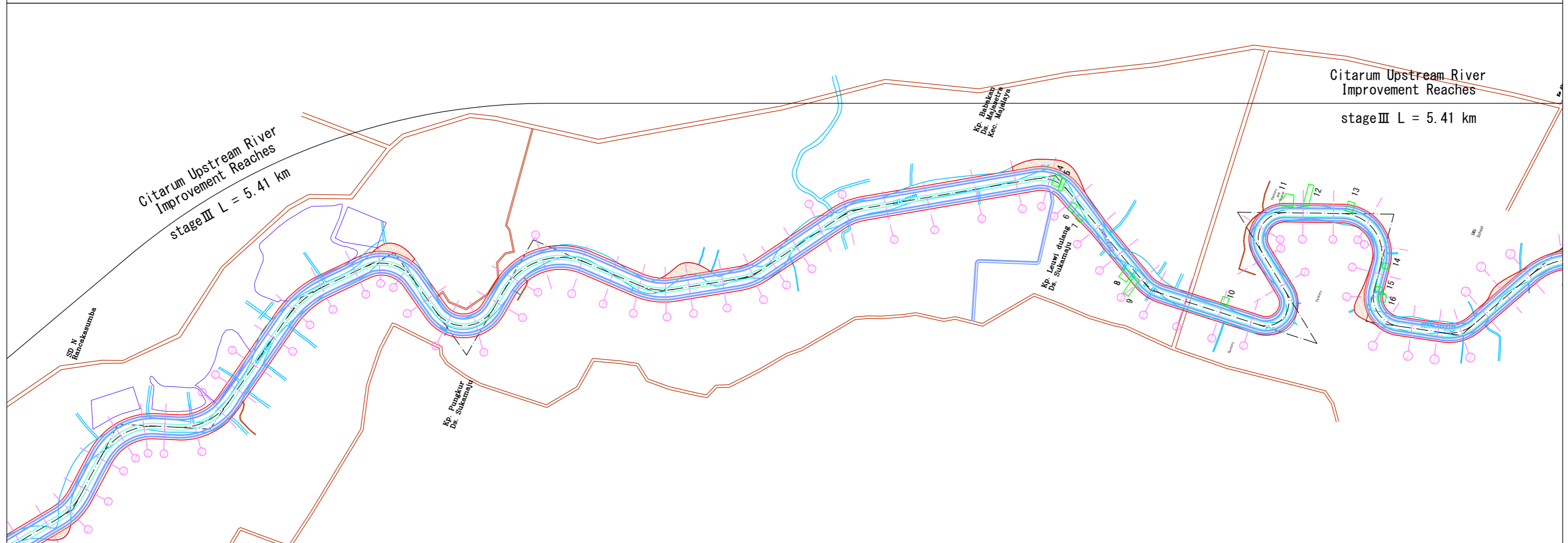
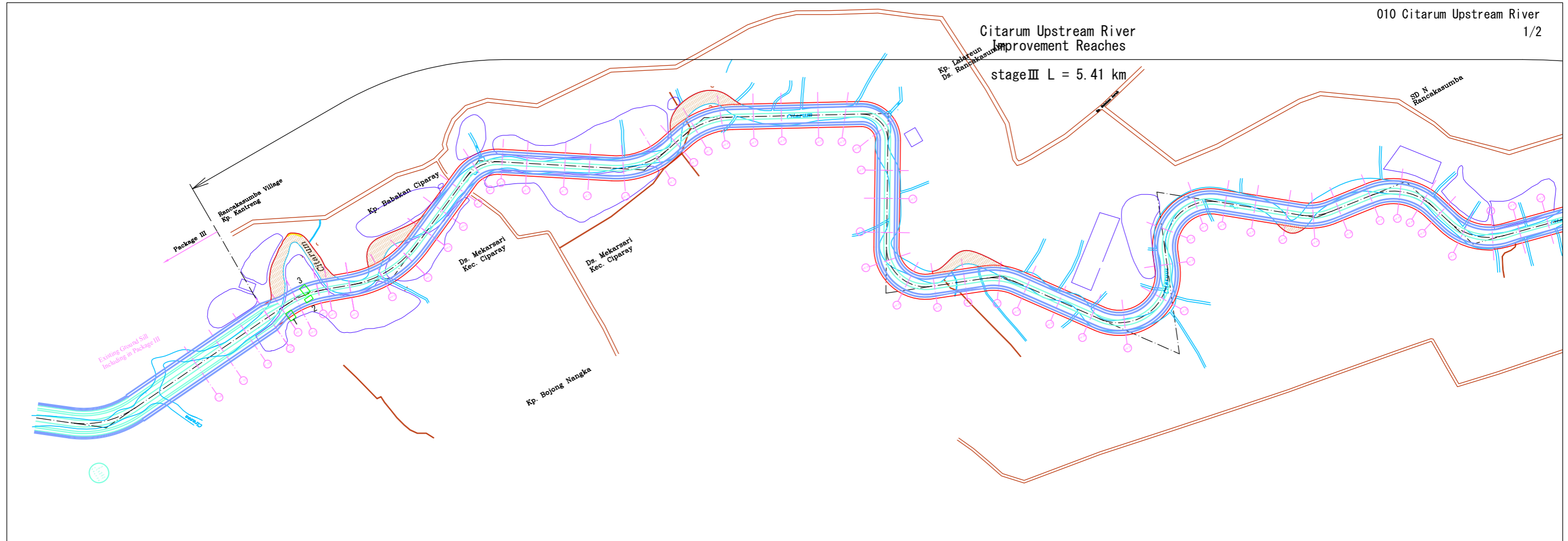


Figure 3 Tentative LARAP Preparation Schedule

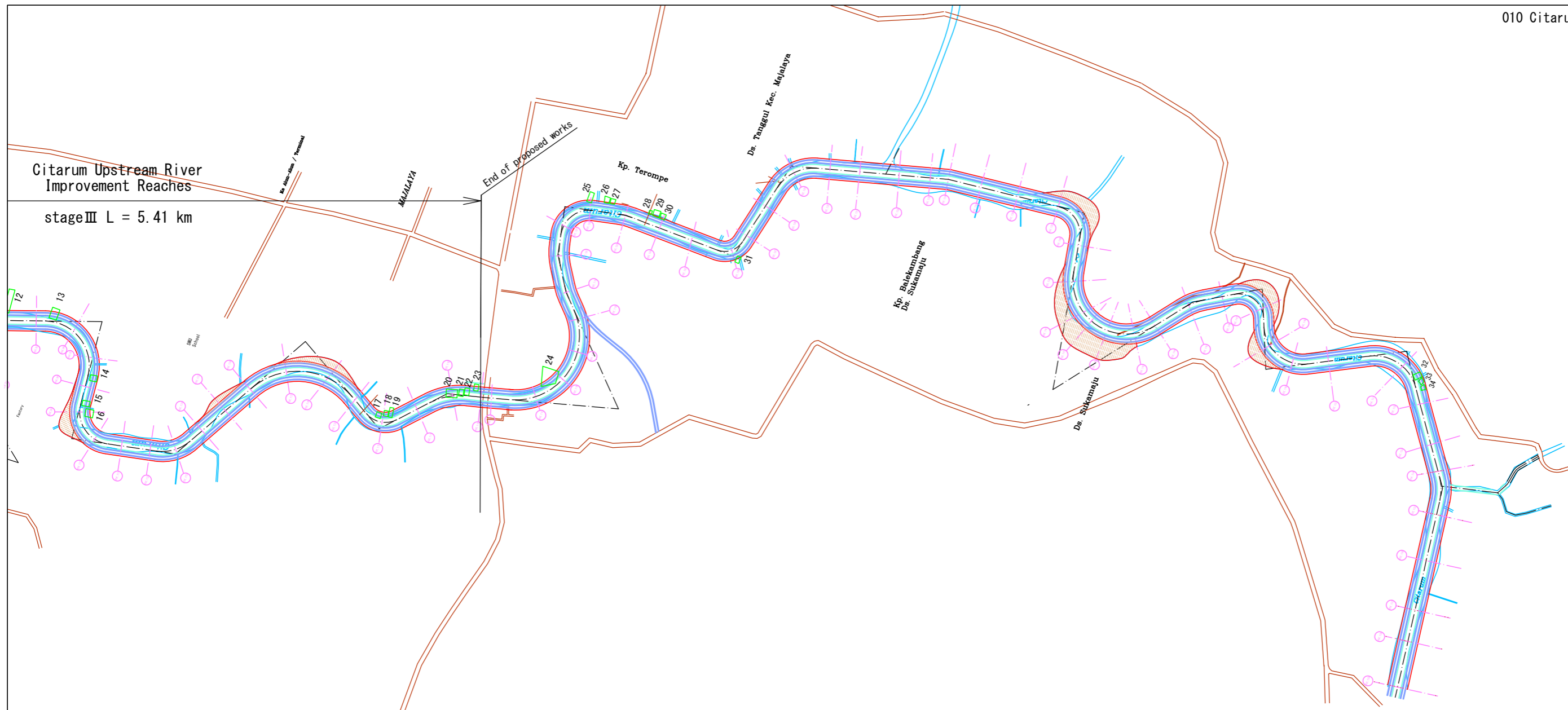
APPENDIX VI:

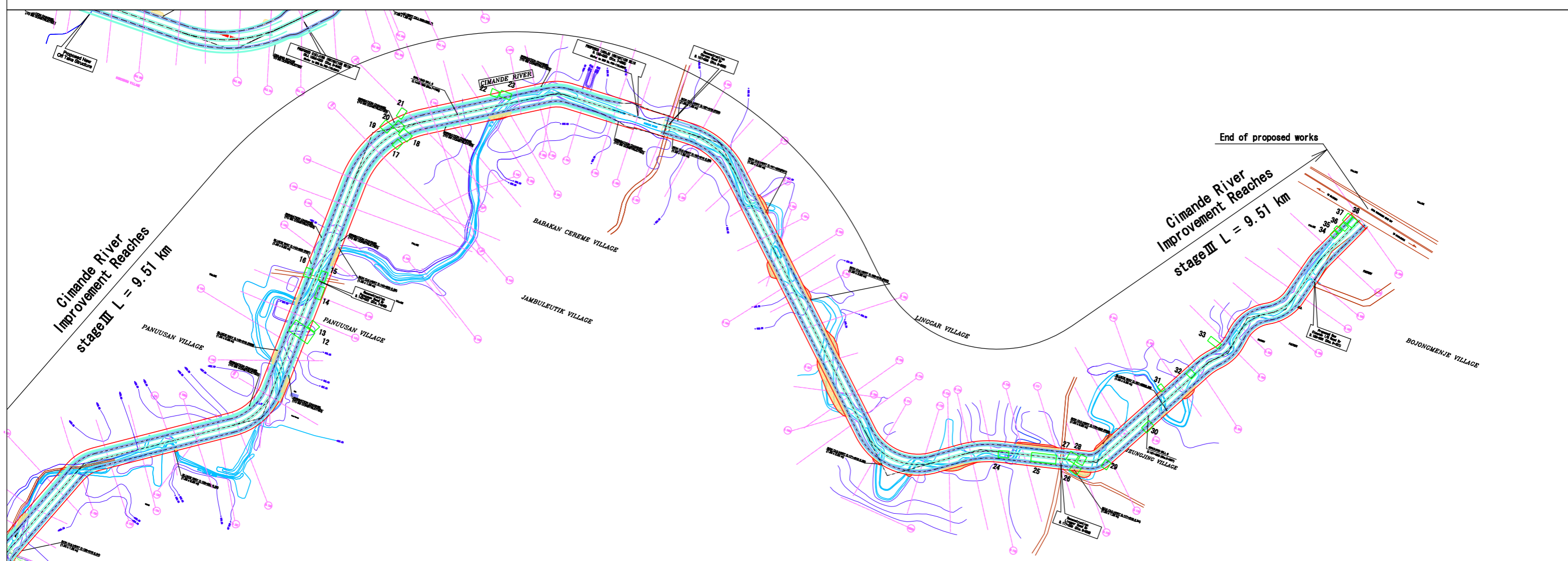
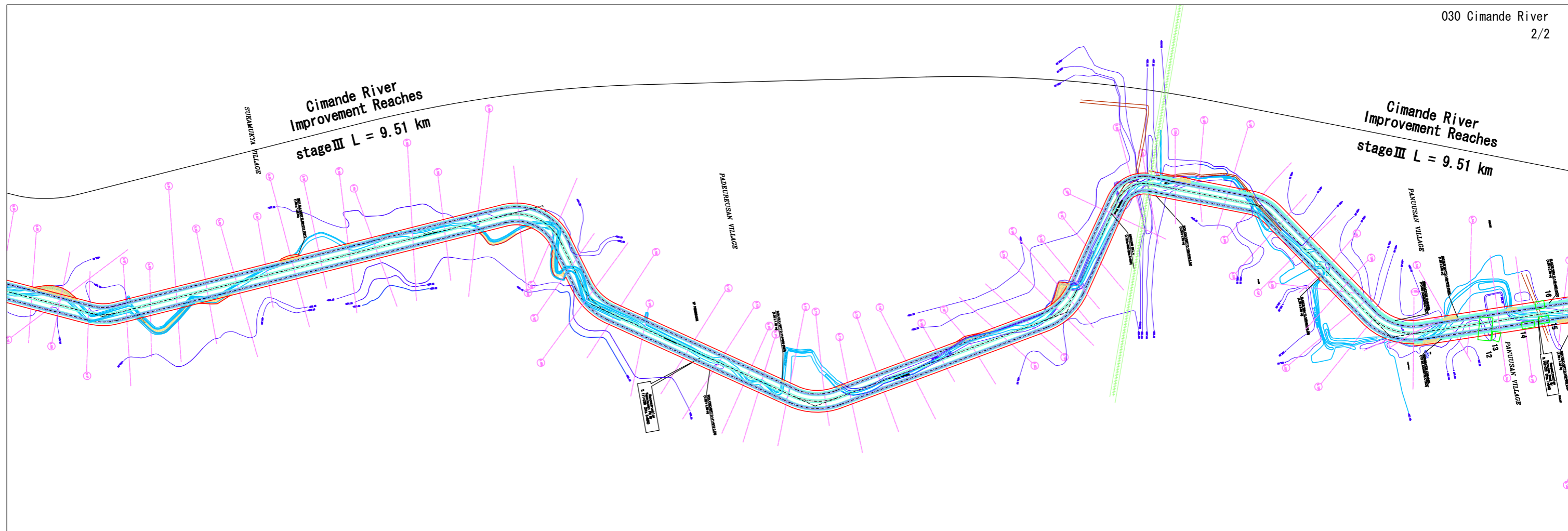
**DRAWINGS OF TRIBUTARIES (COUNTING
OF RESETTLED HOUSES)**



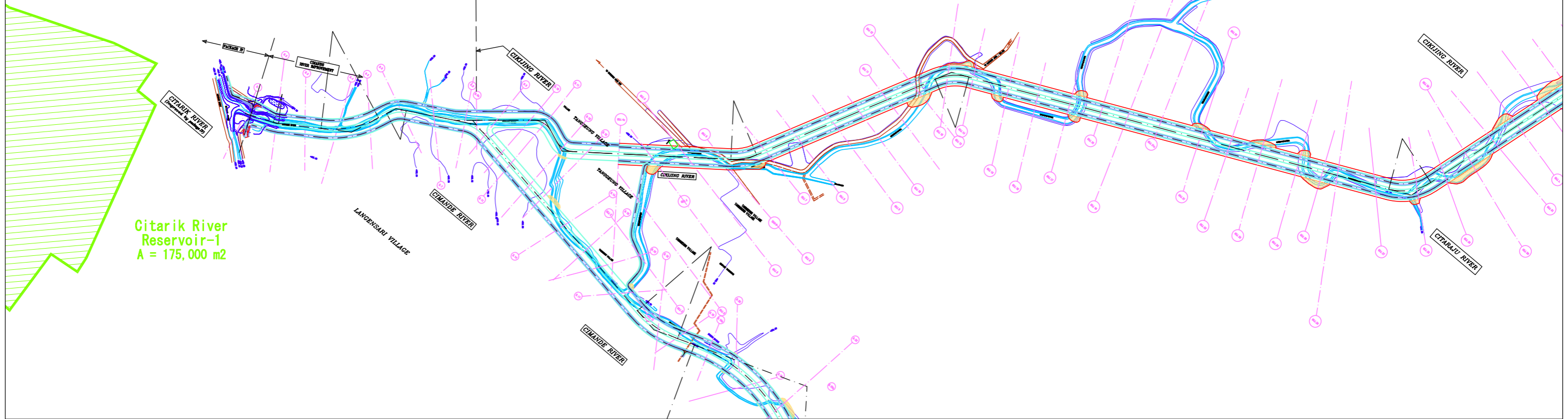
Citarum Upstream River
Improvement Reaches

stage III L = 5.41 km

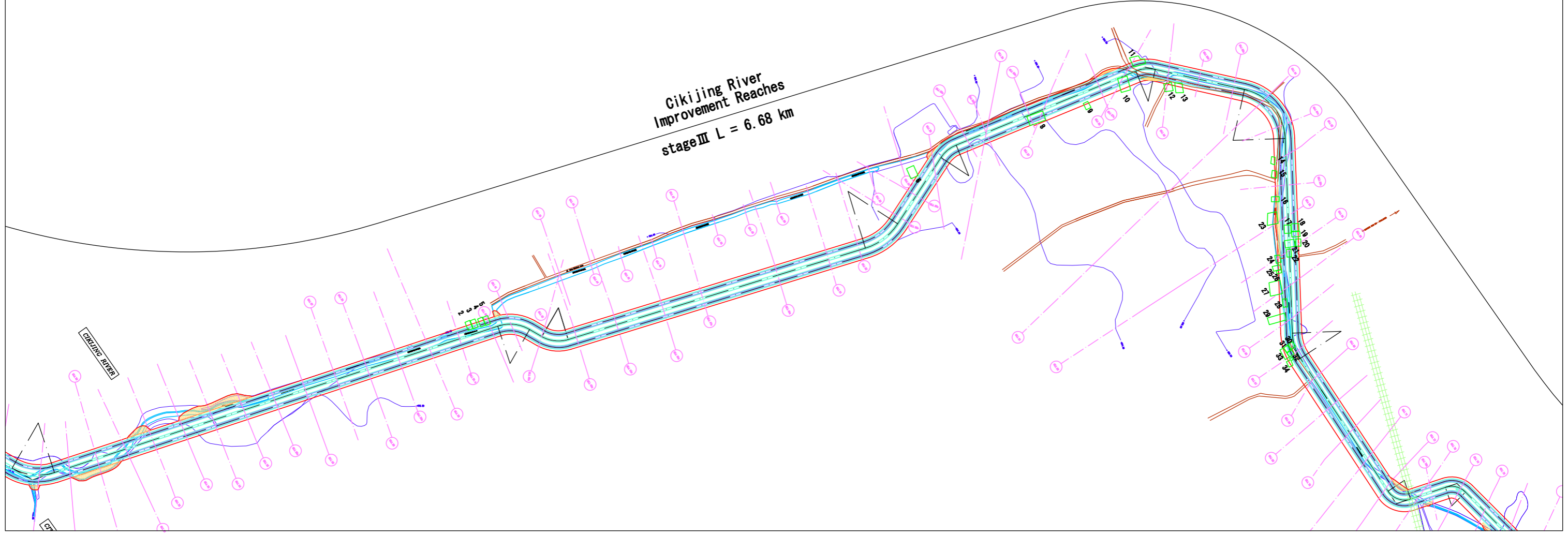




Cikijing River
Improvement Reaches
stage III L = 6.68 km



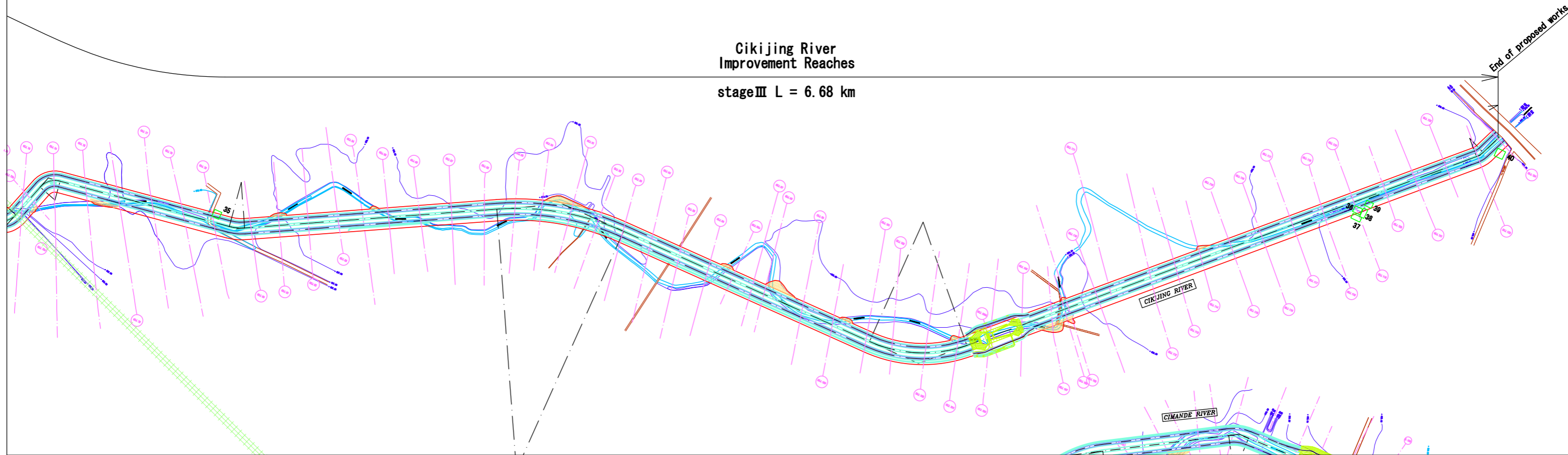
Cikijing River
Improvement Reaches
stage III L = 6.68 km



Cikijing River
Improvement Reaches

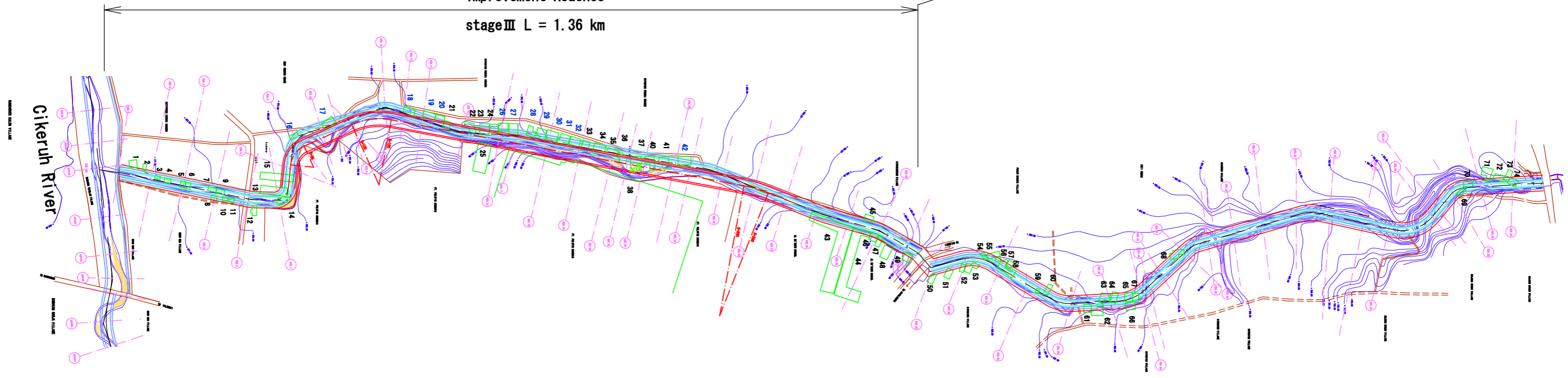
stage III L = 6.68 km

End of proposed works

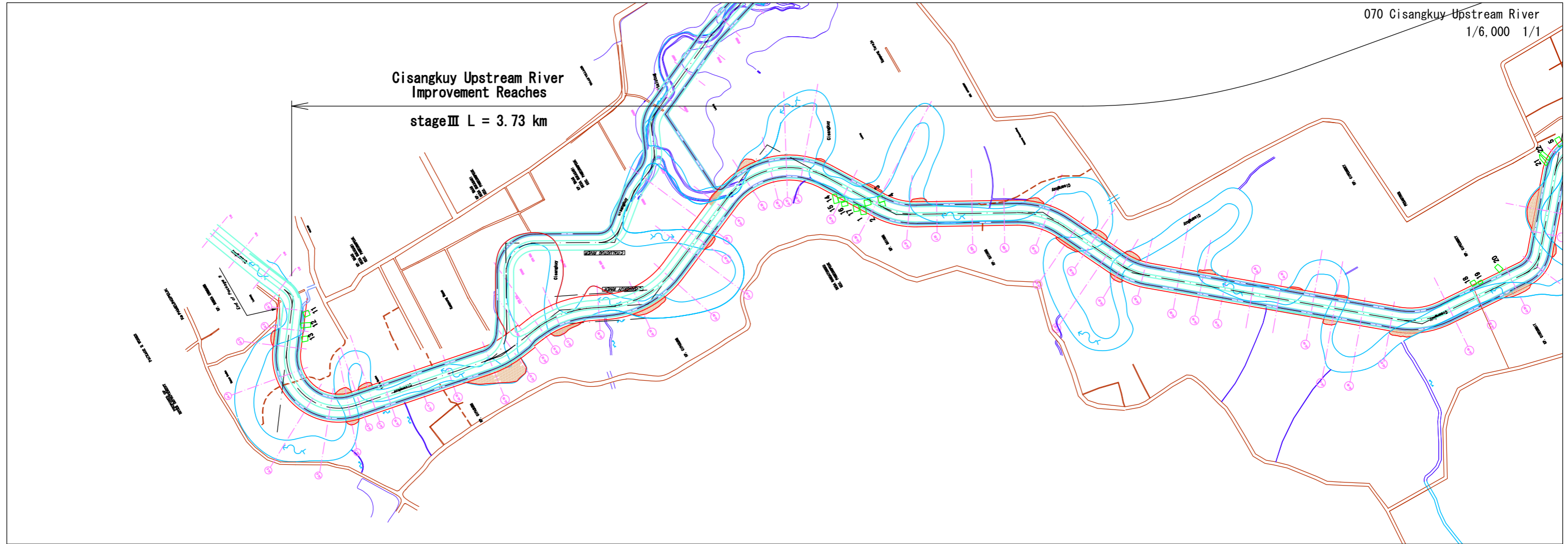


Cibesi River
Improvement Reaches
stage III L = 1.36 km

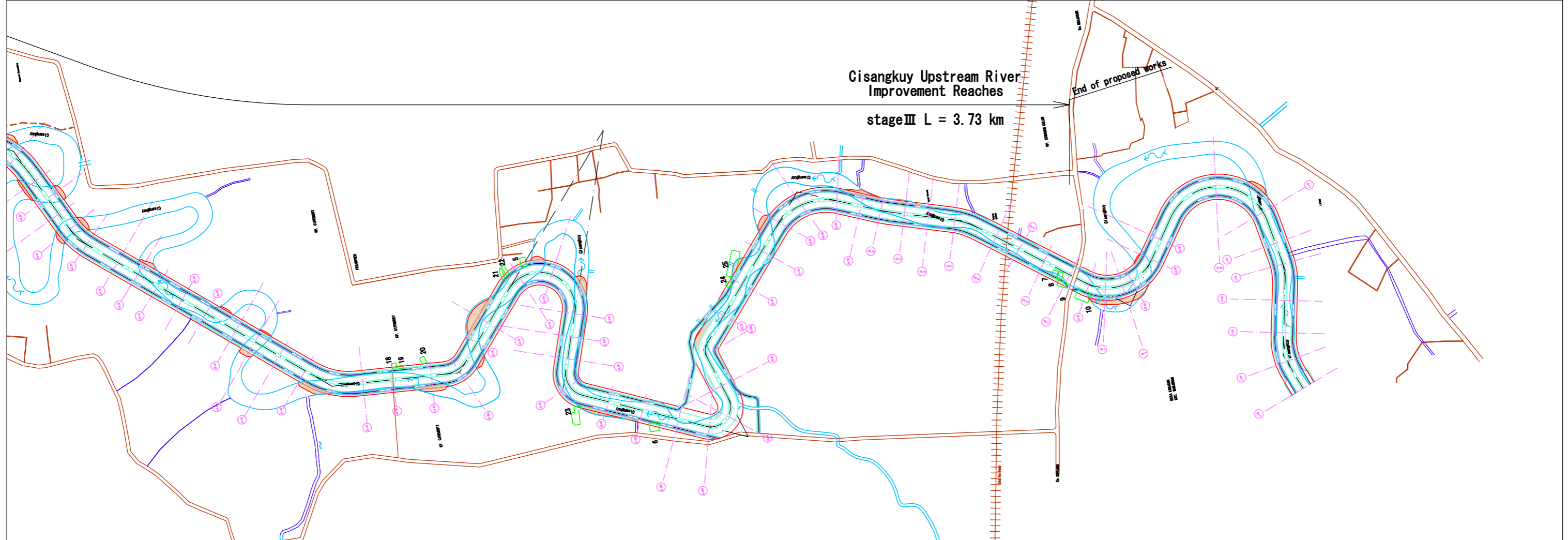
End of proposed works

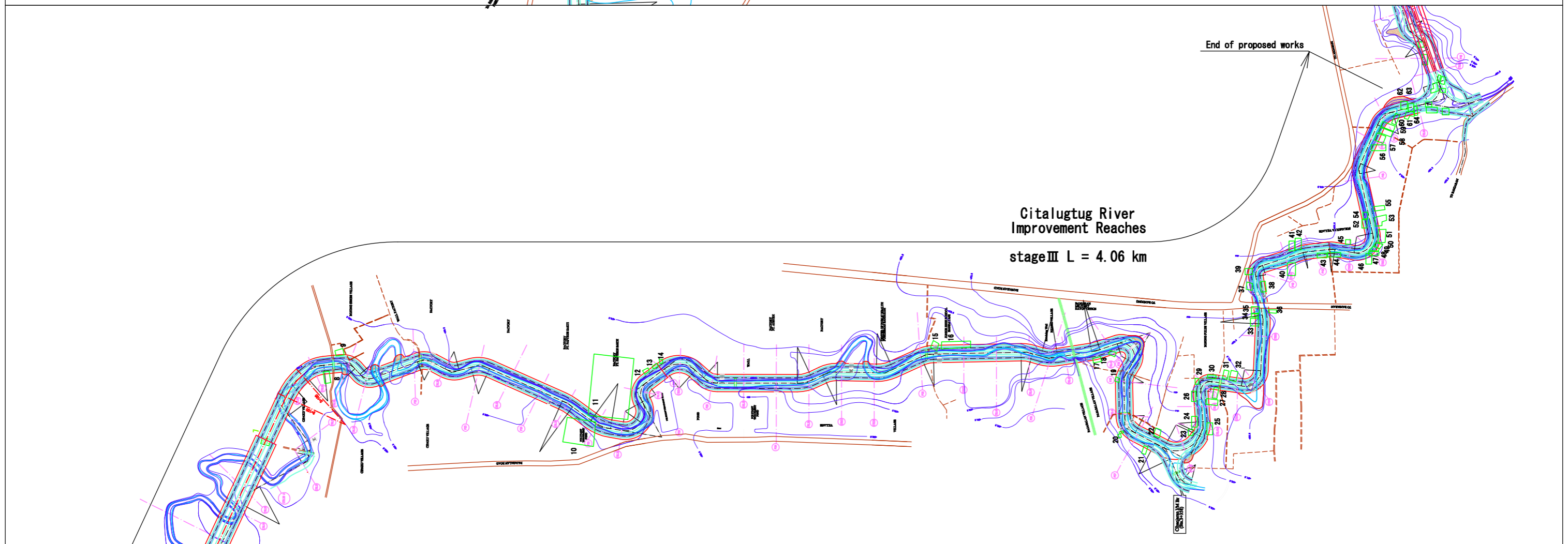
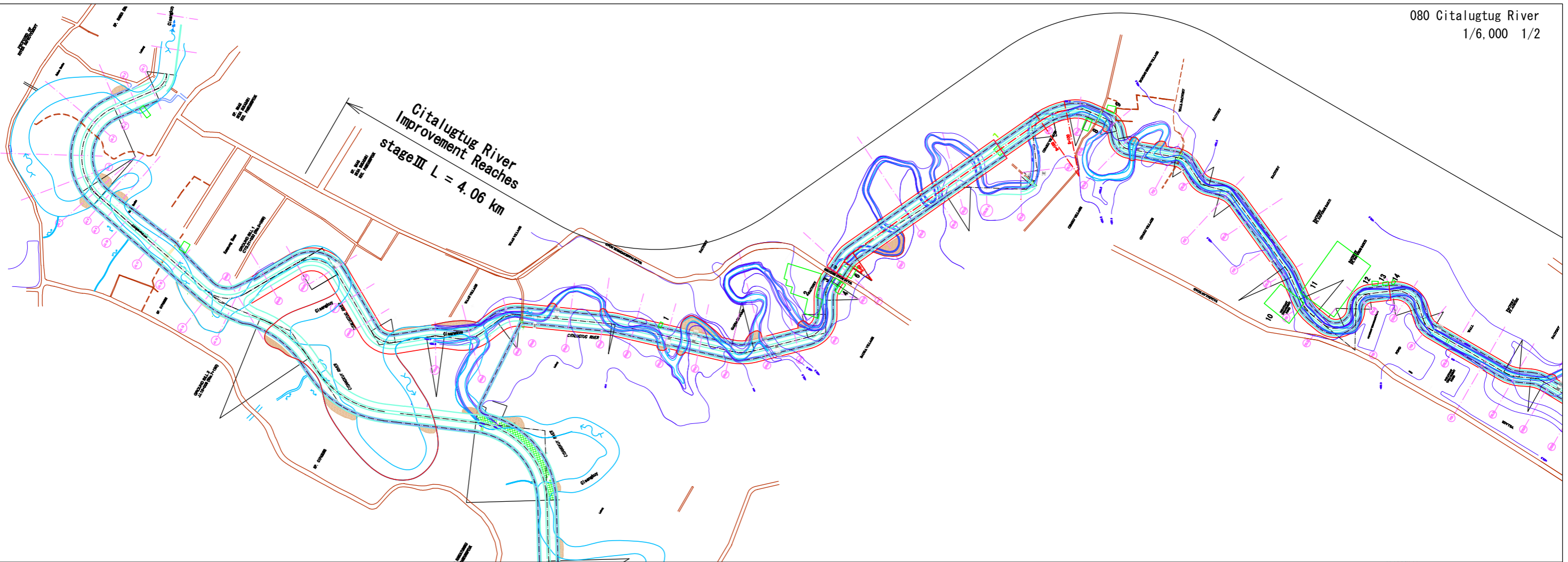


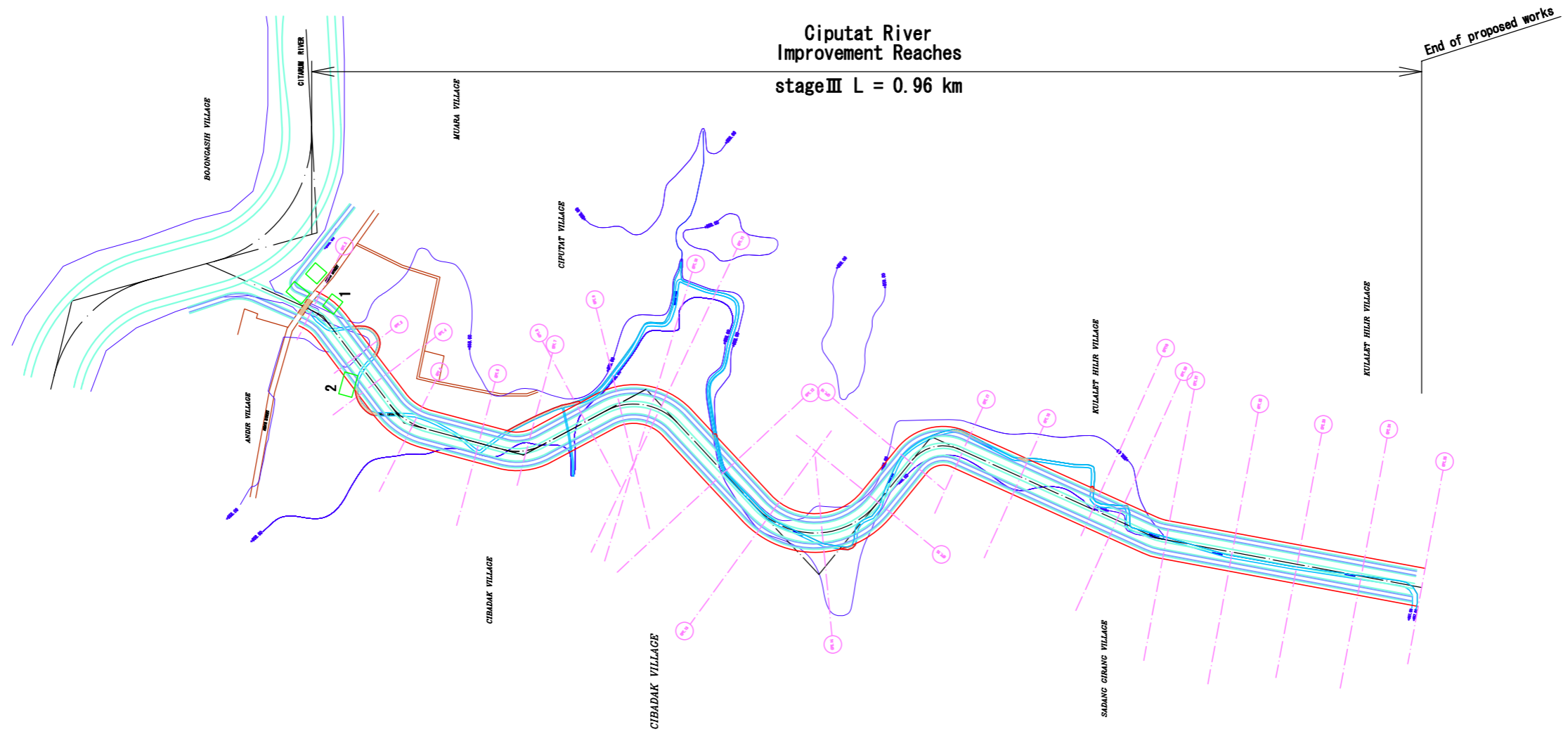
Cisangkuy Upstream River
Improvement Reaches
stage III L = 3.73 km



Cisangkuy Upstream River
Improvement Reaches
stage III L = 3.73 km







APPENDIX VII:
ECONOMIC EVALUATIONS

**APPENDIX VII-1:
SUPPELEMENTAL REPORT FOR
ECONOMIC EVALUATIONS**

SUPPLEMENTAL REPORT FOR ECONOMIC EVALUATIONS

1 Methodology

The main purpose of economic evaluations is to show the economic efficiency of project investment. Although there are many proposed projects in the public sector which must be carried out for the improvement of the life of the citizens, the budget that can be outlaid is limited. Economic analysis evaluates whether or not the project investment will benefit the national economy by analyzing the consumption of national economic resources required.

The economic evaluation for the Project is implemented by calculating the estimated project cost and the flood control benefit. The factors involved in this calculation are the Economic Internal Rate of Return (EIRR), the Net Present Value (NPV) and the Benefit-Cost ratio (B/C).

2 Economic Costs

For economic evaluation, financial costs are converted to economic costs by deducting the tax and subsidies portions, and applying a standard conversion factor (SCF) to the portion of non-trade goods. For this project, a value of 0.9 is applied to the local portion of costs in order to adjust the price.

3 Hydraulic Analysis for Estimation of Economic Costs

Hydraulic analysis was carried out using SOBEK 1D and 1D2D model simulations for Citarum Upper River Basin. 1D2D Model represents river network and topography of surrounding flood plain incorporated by Digital Elevation Method (DEM). Model simulations were done under existing condition “without project” and proposed design “with project”. The proposed design “with project” consists of improvement of four tributaries as

- Citarum River Upstream
- Cimande River
- Cikijing River
- Cikeruh River Downstream

1D2D model simulations were conducted for 2, 5, 10, 20 and 50 year return period flood conditions and respective flood extents and the inundation depths were marked. In order to evaluate the economic benefit comparison study was done based on “with project” and “without project” simulation results.

4 Economic Benefits

Benefits of the flood control project are defined as a reduction of flood damage costs derived from the economic difference between “with project” and “without project” scenarios. For this Project, the “with project” scenario covers the situation where flood control is implemented, and the “without project” scenario covers the situation where no flood control takes place. Benefits are analyzed both quantitatively and qualitatively.

(1) Flood Damage Reduction Benefits

According to the land use study, the survey areas are mainly classified into residential, agricultural field, industrial, and social areas. Therefore, flood damage reduction benefits for the Survey are characterized as damage to houses, paddy fields, industrial facilities/factories, social facilities, and infrastructures.

The flood damage reduction benefits assumed from the flood control project are estimated by the following procedure: 1) estimation of unit asset value, 2) estimation of damage ratio by inundation depth, 3) estimation of probable flood damage, and 4) conversion to annual average flood damage.

1) Estimation of Unit Asset Value

The expected flood damage is estimated by analyzing the value of each asset. The method of estimating the asset values was followed by the “Upper Citarum Basin Urgent Flood Control Project (II)” in 2007 (2007 D/D).

- Houses

The values of houses are measured according to the building values and household assets. According to the decree of Bupati Kabupaten. Bandung (No.640/Kep.201-Kimtawil/2006), the buildings are categorized into three types: permanent, semi-permanent, and non-permanent based on the materials of construction¹. The building values were estimated by deriving from the land values with the ratio of present condition building. The household assets were estimated to be 50% of building values.

Based on the weight of the three building types, the building values were estimated to be Rp. 75 million on average and household assets were estimated at Rp. 37.5 million. Estimation details are summarized in Table 1.

- Paddy Fields

The values of paddy fields were estimated by subtracting production costs from yield based on the unit yield and production price of rice². As a result, the unit yield was Rp. 800 million/km². Estimation details are summarized in Table 2.

- Industrial Facilities/Factories

The values of industrial facilities/factories are measured by calculating the building values, depreciable assets, and inventory stock. Facilities/factories are categorized into three types with large, medium, and small scales. The building values were estimated by deriving from the land values with the coverage ratio and the ratio of present condition building. Depreciable assets were estimated at 10 times the building values and inventory stock was estimated at 50% of depreciable assets for 3.2 years.

¹ Permanent, semi-permanent and non-permanent houses are classified based on the materials of construction which are fully concrete, concrete and wood, and wood only respectively.

² (Net value of paddy field) = (unit yield) x (production price of rice) – (production costs)

Based on the weight of three scale types, the building values, depreciable assets, and inventory stock were estimated at Rp. 1,605 million, Rp. 6,420 million, and Rp. 1,003 million respectively on average. Estimation details are summarized in Table 3.

Interruption to business operations was also considered for the survey. Business operation costs per day were estimated by multiplying the number of employees and their daily wage. As a result, business operation costs per day were estimated at Rp. 30 million.

- Social Facilities

Social facilities are categorized into medical, educational, religious, and administrative facilities. The values of social facilities are measured by calculating the building values and inside assets. The building values of social facilities were estimated by deriving from the land values with the ratio of present condition building. The inside assets were estimated to be worth 50% of building values.

Based on the weight of social facilities type, the building values were estimated at Rp. 100 million on average, and inside assets were Rp. 50 million. Estimation details are summarized in Table 4.

2) Estimation of Damage Ratio by Inundation Depth

Following the previous study, 2007 D/D, the damage ratio caused by inundation depth is utilized Japanese standard of damage ratio prepared by the Ministry of Land, Infrastructure and Transport, Japan. Damage ratio is summarized in Table 5 to Table 8.

3) Estimation of Probable Flood Damage

The probable flood damage to houses, paddy fields, industrial facilities/factories, and social facilities is estimated under the various magnitudes of flood events. For the estimation, by implementing hydraulic simulations, the inundated areas are identified for floods with return periods of 2, 5, 10, 20 and 50 years in each basin. The simulations were carried out for both “with project” and “without project” cases.

The numbers and areas of flood damage were estimated based on the GIS data of National Coordination Agency for Surveys and Mapping (BAKOSURTANAL) 2008 as follows:

- The number of houses and households: estimated by dividing the settlement area by the average household number of 5 persons in the survey area based on the total population of each Kecamatan.
- The area of paddy fields: estimated by the total area of paddy fields and rain-fed paddy fields.
- The number of industrial facilities/factories: calculated by dividing the industrial area by the average area of each industrial facility/factory.
- The number of social facilities: estimated by point data

Based on the simulation results, the inundation numbers and areas of houses, paddy fields, industrial facilities/factories, and social facilities affected by each return period flood by inundation depth are summarized from Table 9 to Table 16.

With the analysis on the inundation numbers and area, using unit asset value and flood damage ratio, flood damages were estimated by inundation depth and recurrences respectively in Table 17 to Table 20. The damage of infrastructure (roads and bridges) was utilized 28% of the sum of house building values and household assets which is set by Ministry of Land, Infrastructure and Transport, Japan.

4) Conversion of Probable Flood Damage to Annual Average Flood Damage

Based on the probable flood damage, the annual average flood damage is estimated by calculations deriving from the economic difference between “with project” and “without project”. The expected annual benefit is summarized below and a detailed summary of the estimation is shown in Table 21.

(Rp. Million)	
Annual Average Damage without Project	331,958
Annual Average Damage with Project	290,027
Expected Annual Benefit	41,932

5 Economic Evaluation for the Proposed Flood Control Project

(1) Basic Assumptions

Based on the economic benefits, the construction costs, and operation and maintenance costs (O&M costs), the Economic Internal Rate of Return (EIRR), Net Present Value (NPV) and Benefit-Cost ratio (B/C) are calculated. The following basic assumptions were set up:

- Project life is 30 years after completion of the construction works.
- Discount rate is 10%.
- Price for exchange rate is IDR 1.0 = JPY 0.0101

(2) Construction Costs

The project costs of financial prices are converted to economic prices. The portion of price contingency is excluded from the economic construction costs. The total financial project cost was Rp. 439,375 million and the economic project cost was Rp. 306,463 million. Table 22 shows the summary of the project costs.

Construction costs are disbursed over six years according to the implementation schedule as shown in the following:

Year	Portion	Service
Year 1	1%	detailed design
Year 2	7%	detailed design & procurement
Year 3	25%	procurement & construction
Year 4	40%	construction
Year 5	25%	construction
Year 6	2%	construction

(3) Operation and Maintenance Cost

According to BBWSC, the annual operation and maintenance cost is Rp. 100 million/km. Dredging is assumed to implement every three years. Therefore, the annual operation and maintenance cost is expected Rp. 800 million.

(4) Cost Benefit Analysis

The results of the evaluation for the proposed projects are calculated to show the Economic Internal Rate of Return (EIRR), Net Present Value (NPV) and Benefit-Cost ratio (B/C) as follows. The annual flow of economic cost and benefit is shown in Table 23.

Indicator	Result
EIRR	10.3%
B/C (at discount rate of 10%)	1.04
NPV (Rp.billion, at discount rate of 10%)	10.17

All the three indicators of the economic evaluations ensure economic feasibility of the proposed project; 10.3% EIRR (higher than the discount rate 10%), 1.04 B/C Ratio (one or above), and a sufficiently positive NPV.

A case that the project is 50 years after completion of the construction work is also evaluated. The annual flow of economic cost and benefit is shown Table 24.

Indicator	Result
EIRR	10.7%
B/C (at discount rate of 10%)	1.10
NPV (Rp.billion, at discount rate of 10%)	22.66

(5) Sensitive Analysis

A sensitive analysis was undertaken to assess the project feasibility under the following worse case scenarios:

- Increase in construction costs by 10% and 20%
- Decrease in economic benefits by 10% and 20%

The results of the sensitive analysis are shown as follows. EIRR does not show economic feasibility in any of the cases.

		Benefit		
		0%	-10%	-20%
Cost	0%	10.3%	9.2%	7.9%
	+10%	9.3%	8.1%	7.0%
	+20%	8.3%	7.3%	6.1%

6 Intangible Benefits

In addition to the tangible benefits analyzed in the Survey, there are various impacts on the region that will result from the proposed flood control project. The intangible benefits that can be expected are as follows:

(1) Promotion of Economic Development

Bandung is one of the most famous tourist places for foreign tourists as well as for Indonesian people. There are a lot of shopping places and nice restaurants, and Bandung has relatively cool temperatures all year round. Therefore, many people, namely from Jakarta, visit Bandung because it is only a few hours drive. The flood control project will promote improvement of the economy through an increase in tourism.

(2) Alleviation of Traffic Congestion

Floods paralyze the local transportation network. Roads and bridges are inundated by massive volumes of floodwater, and fallen utility poles and trees completely block the roads. Because of this, thousands of vehicles stack up along the roads for hours. People take detours or alternative routes and spend more time and money. The flood control project will alleviate traffic congestion and save time and money.

(3) Hygienic Improvement of the Environment

After floods, a lot of waste accumulates along roads and under bridges. Floodwater contaminated with waste, sewage and chemicals from factories runs through residential areas, and gives off a foul smell. This environment causes ill-health and infectious diseases. In particular, because children play in the floodwater, they contract skin diseases with itching, followed by acute respiratory disease and diarrhea. The project will improve the hygienic environment and decrease the occurrence of disease.

(4) Alleviation of Inconvenience to People's lives

Flooding usually causes inconvenience to people's lives by creating extra work and requiring people to take time to clean houses and fix damaged household assets. In addition, it causes a shortage of goods and makes access to markets difficult. The project will allow people to avoid these inconveniences and live contently.

Table 1 Values of Building and Household Assets

Building Type	Land value (/m2)		
Permanent	Rp. 1,718,720 /m2	- Rp. 2,400,908 /m2	
Semi-permanent	Rp. 1,351,391 /m2	- Rp. 1,495,410 /m2	
Non-permanent	Rp. 1,040,720 /m2	- Rp. 1,222,741 /m2	
	Average land value		
Permanent	Rp. 2,059,814 /m2	x 70 m2 = Rp. 144,186,981	
Semi-permanent	Rp. 1,423,400 /m2	x 40 m2 = Rp. 56,936,012	
Non-permanent	Rp. 1,131,731 /m2	x 35 m2 = Rp. 39,610,575	
	Average present condition building		Field ratio
Permanent	70%	x Rp. 144,186,981 = Rp. 100,930,886	67%
Semi-permanent	50%	x Rp. 56,936,012 = Rp. 28,468,006	20%
Non-permanent	50%	x Rp. 39,610,575 = Rp. 19,805,287	13%
Average present building value		=	Rp. 75,891,982
		=	Rp. 75,000,000
Average present value of household assets (assumed at 50% of building value)		=	Rp. 37,500,000

Source: Land value: Decree of Bupati Kabupaten. Bandung (No.640/Kep.201-Kimtawil/2006), Ratio of present condition building: 2007 D/D, Ratio of household asset: Preliminary information of ADB UCBFM project 2010 and field survey, Field ratio: Preliminary information of ADB UCBFM project 2011

Table 2 Values of Paddy Fields

Net Value = (Farm Gate Price) x (Unit Yield) - (Production Cost)	
Producer Price:	Rp. 2,640,000 /ton
Unit Yield:	6.0 ton/ha
Gross Income:	Rp. 15,840,000 /ha
Production Cost	Rp. 7,762,500 /ha
Net Value	Rp. 8,077,500 /ha
	= Rp. 8,000,000 /ha

Source: Agriculture and Forestry office in Kabupaten Badung, 2011

Table 3 Values of Industrial Facilities/Factories

Type of factory	Land value (/m2)		Field ratio
Large Scale	Rp. 2,439,823	x 5,000 m2 x 75% =	Rp. 9,149,335,466 32%
Mediam Scale	Rp. 2,033,186	x 2,000 m2 x 80% =	Rp. 3,253,097,055 32%
Small Scale	Rp. 1,762,094	x 70 m2 x 100% =	Rp. 123,346,597 36%
Building value	Ave.	=	Rp. 4,013,183,181
	Average Presend Condition: 40%	=	Rp. 1,605,273,273
		=	Rp. 1,605,000,000
Depreciable assets (assumed 10 times of building value)		=	Rp. 16,050,000,000
	Average Presend Condition: 40%	=	Rp. 6,420,000,000
Inventory Stock (assumed at 50% of descreciable assets for 3.2 years)		=	Rp. 1,003,125,000
		=	Rp. 1,003,000,000
Average total payment for employees per day		=	Rp. 30,248,010
		=	Rp. 30,000,000

Source: Land value and present condition ratio: 2007 D/D, Coverage ratio: Preliminary information of ADB UCBFM Project 2010 and field survey

Table 4 Values of Social Facilities

Building Value					Field Ratio	
Medical Facility	1,910,335 /m2	x	50 m2	=	95,516,725	6%
Educational Facility	1,528,268 /m2	x	200 m2	=	305,653,521	23%
Religious Facilities	1,910,335 /m2	x	40 m2	=	76,413,380	65%
Administrative Facilitie	1,910,335 /m2	x	150 m2	=	286,550,176	6%
				Ave. =	142,893,021	
Average Present Condition				70% =	100,025,115	
				=	100,000,000	
Average present value of inside assets (assumed at 50% of building value) = 50,000,000						

Source: Building value and field ratio: 2007 D/D, Ratio of present condition building and inside asset: Preliminary information of ADB UCBFM Project 2010

Table 5 Damage Ratios of Housing

Item	Inundation depth above floor level				
	< 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m <
Building	0.092	0.119	0.266	0.580	0.834
Household Assets	0.145	0.326	0.508	0.928	0.991

Source: Manual for Survey for Flood Economy (the Manual), Japan 2005

Table 6 Damage Ratios of Agricultural Land/ Products

Item	Inundation depth above floor level		
	< 0.5 m	0.5 - 1.0 m	1.0 m <
Damage Ratio	0.30	0.5	0.74

Source: Manual for Survey for Flood Economy (the Manual), Japan 2005

Table 7 Damage Ratios of Industrial Factories

Item	Inundation depth above floor level				
	< 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m <
Building	0.092	0.119	0.266	0.580	0.834
Depreciable Assets	0.232	0.453	0.789	0.966	0.995
Inventory Stock	0.128	0.267	0.586	0.897	0.982

Source: Manual for Survey for Flood Economy (the Manual), Japan 2005

Table 8 Days of Suspension/Stagnancy of Business Operations

Item	Inundation depth above floor level				
	< 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m <
Suspension Days	4.4	6.3	10.3	16.8	22.6
Stagnancy Days	8.8	12.6	20.6	33.6	45.2
Average Days	6.6	9.45	15.45	25.2	33.9

Note: The Survey Team estimates the average days and utilizes them.

Source: Manual for Survey for Flood Economy (the Manual), Japan 2005

Table 9 Estimated Number of Inundated Houses and Respective Inundation Depth and Recurrence (Without Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Houses				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	224	324	398	421	473
Rancaekek	10,190	14,182	17,761	20,919	23,611
Bojongsoang	0	0	43	58	915
Dayeuhkolot	0	0	0	15	512
Baleendah	0	62	64	634	1,851
Cicalengka	1,175	1,259	1,461	1,462	1,466
Cikancung	1,114	1,403	1,745	1,831	1,873
Paseh	50	293	301	933	1,363
Solokan jeruk	2,801	4,027	4,651	8,043	9,552
Ciparay	984	1,634	1,988	2,671	3,781
Majalaya	391	704	914	4,154	9,655
Ibun	0	0	0	3	21
Kutawaringin	174	212	256	280	377
Margaasih	52	98	141	151	235
Katapang	271	380	569	1,269	1,794
Cangkuang	0	67	130	175	330
Pameungpeuk	174	776	1,058	1,788	3,724
Banjaran	65	192	216	236	323
Arajsari	0	10	10	34	35
Margahayu	37	67	111	200	420
Rancasari	17	17	17	46	116
Total	17,718	25,709	31,833	45,322	62,427

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	12
Rancaekek	536	674	1,223	2,371	2,972
Bojongsoang	0	0	0	43	66
Dayeuhkolot	0	0	0	0	23
Baleendah	0	0	13	0	131
Cicalengka	24	168	404	452	476
Cikancung	0	0	48	61	64
Paseh	0	40	40	40	25
Solokan jeruk	99	248	420	778	1,276
Ciparay	66	175	304	725	774
Majalaya	0	17	17	188	455
Ibun	0	0	0	0	0
Kutawaringin	51	32	37	88	136
Margaasih	7	7	9	38	90
Katapang	27	63	142	271	667
Cangkuang	0	5	54	98	57
Pameungpeuk	0	20	41	253	460
Banjaran	0	6	31	66	68
Arajsari	0	0	0	0	0
Margahayu	0	3	7	35	108
Rancasari	0	0	0	0	10
Total	809	1,458	2,788	5,506	7,874

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	224	323	382	394	396
Rancaekek	8,970	11,918	13,460	15,302	15,086
Bojongsoang	0	0	43	0	607
Dayeuhkolot	0	0	0	15	195
Baleendah	0	62	35	582	1,302
Cicalengka	1,001	645	510	344	345
Cikancung	1,114	1,326	1,633	1,633	1,632
Paseh	10	254	262	882	886
Solokan jeruk	2,134	3,074	3,359	5,706	5,833
Ciparay	697	1,097	1,176	1,476	2,109
Majalaya	391	641	820	3,866	7,190
Ibun	0	0	0	3	18
Kutawaringin	91	56	59	67	105
Margaasih	44	53	89	53	84
Katapang	205	159	215	641	457
Cangkuang	0	14	41	25	180
Pameungpeuk	150	737	910	1,396	2,197
Banjaran	61	140	145	121	112
Arajsari	0	10	10	34	6
Margahayu	34	33	51	127	204
Rancasari	17	17	17	46	33
Total	15,144	20,558	23,216	32,715	38,976

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	163	365	424	583
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	20
Baleendah	0	0	0	13	31
Cicalengka	0	0	0	9	24
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	14
Solokan jeruk	0	0	0	17	45
Ciparay	0	0	0	0	82
Majalaya	0	0	0	17	80
Ibun	0	0	0	0	0
Kutawaringin	11	36	48	51	76
Margaasih	0	0	0	5	7
Katapang	0	6	16	26	109
Cangkuang	0	0	0	0	40
Pameungpeuk	0	0	0	9	44
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	1	1	2
Rancasari	0	0	0	0	0
Total	11	205	430	571	1,160

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	2	16	27	65
Rancaekek	684	1,428	2,712	2,822	4,970
Bojongsoang	0	0	0	16	242
Dayeuhkolot	0	0	0	0	274
Baleendah	0	0	16	39	387
Cicalengka	150	446	547	657	621
Cikancung	0	76	64	137	176
Paseh	40	0	0	11	438
Solokan jeruk	569	705	873	1,541	2,398
Ciparay	221	362	508	470	815
Majalaya	0	46	76	83	1,930
Ibun	0	0	0	0	3
Kutawaringin	15	83	96	58	44
Margaasih	0	37	42	54	53
Katapang	39	154	196	330	552
Cangkuang	0	49	36	52	52
Pameungpeuk	24	20	108	130	1,016
Banjaran	4	45	41	48	143
Arajsari	0	0	0	0	29
Margahayu	2	31	53	37	106
Rancasari	0	0	0	0	73
Total	1,748	3,483	5,382	6,513	14,387

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	5	5	16	16	16
Margaasih	1	1	1	1	1
Katapang	0	0	0	0	8
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	6
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	1
Rancasari	0	0	0	0	0
Total	6	6	17	17	32

Source: JICA Survey Team

Table 10 Estimated Number of Inundated Houses and Respective Inundation Depth and Recurrence (With Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Houses				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	51	113	169	201	356
Rancaekek	7,757	11,709	15,778	19,874	22,779
Bojongsoang	0	0	0	57	499
Dayeuhkolot	0	0	0	60	576
Baleendah	0	63	124	770	1,873
Cicalengka	1,083	1,253	1,422	1,427	1,432
Cikancung	1,108	1,410	1,745	1,831	1,873
Paseh	50	294	370	1,075	1,373
Solokan jeruk	2,183	3,688	4,846	7,100	9,891
Ciparay	390	1,209	1,576	2,515	3,886
Majalaya	366	1,416	2,421	6,090	10,262
Ibun	0	1	2	3	21
Kutawaringin	174	200	235	256	377
Margaasih	51	93	141	151	235
Katapang	271	380	564	1,334	1,817
Cangkuang	0	67	130	175	330
Pameungpeuk	174	776	1,103	1,731	3,674
Banjaran	65	192	216	236	323
Arajsari	0	10	10	34	35
Margahayu	37	67	144	200	420
Rancasari	0	0	0	0	93
Total	13,760	22,942	30,997	45,121	62,127

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	231	241	304	1,587	2,580
Bojongsoang	0	0	0	0	64
Dayeuhkolot	0	0	0	0	66
Baleendah	0	0	13	0	97
Cicalengka	9	134	400	461	493
Cikancung	0	0	48	61	64
Paseh	0	40	40	40	25
Solokan jeruk	0	107	411	812	1,228
Ciparay	0	91	230	653	784
Majalaya	0	0	0	17	330
Ibun	0	0	0	0	0
Kutawaringin	51	57	37	85	122
Margaasih	7	7	8	43	86
Katapang	40	68	138	277	667
Cangkuang	0	5	54	98	57
Pameungpeuk	0	20	41	253	478
Banjaran	0	6	31	66	61
Arajsari	0	0	0	0	0
Margahayu	3	3	7	36	105
Rancasari	0	0	0	0	0
Total	340	779	1,761	4,487	7,307

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	51	113	169	201	295
Rancaekek	6,821	10,422	12,436	14,935	15,824
Bojongsoang	0	0	0	14	390
Dayeuhkolot	0	0	0	60	257
Baleendah	0	63	94	718	1,277
Cicalengka	951	538	453	401	390
Cikancung	1,108	1,334	1,633	1,663	1,632
Paseh	10	254	331	1,024	815
Solokan jeruk	1,917	2,829	3,568	4,897	6,379
Ciparay	286	865	885	1,382	2,293
Majalaya	366	1,416	2,404	5,645	7,261
Ibun	0	1	2	3	18
Kutawaringin	91	69	37	53	105
Margaasih	43	49	89	58	88
Katapang	163	159	211	635	480
Cangkuang	0	14	41	25	180
Pameungpeuk	150	737	955	1,339	2,165
Banjaran	61	140	145	121	123
Arajsari	0	10	10	34	6
Margahayu	34	32	79	127	166
Rancasari	0	0	0	0	47
Total	12,051	19,043	23,541	33,336	40,194

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	399	399	434	426	373
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	20
Baleendah	0	0	0	13	31
Cicalengka	0	0	0	9	9
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	14
Solokan jeruk	0	0	0	0	39
Ciparay	0	0	0	0	56
Majalaya	0	0	0	0	17
Ibun	0	0	0	0	0
Kutawaringin	11	11	53	48	76
Margaasih	0	0	0	0	7
Katapang	0	6	16	32	109
Cangkuang	0	0	0	0	40
Pameungpeuk	0	0	0	9	44
Banjaran	0	0	0	0	8
Arajsari	0	0	0	0	0
Margahayu	0	0	1	1	5
Rancasari	0	0	0	0	0
Total	410	416	503	537	850

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	61
Rancaekek	306	646	2,603	2,894	3,903
Bojongsoang	0	0	0	43	44
Dayeuhkolot	0	0	0	0	232
Baleendah	0	0	17	39	468
Cicalengka	124	581	569	556	540
Cikancung	0	76	64	107	176
Paseh	40	0	0	11	518
Solokan jeruk	267	753	866	1,391	2,245
Ciparay	104	253	461	481	754
Majalaya	0	0	17	428	2,654
Ibun	0	0	0	0	3
Kutawaringin	15	57	96	54	57
Margaasih	0	36	44	49	54
Katapang	68	148	199	391	552
Cangkuang	0	49	36	52	52
Pameungpeuk	24	20	108	130	981
Banjaran	4	45	41	48	132
Arajsari	0	0	0	0	29
Margahayu	0	33	58	36	144
Rancasari	0	0	0	0	46
Total	953	2,697	5,180	6,710	13,645

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	34	99
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	5	5	11	16	16
Margaasih	1	1	1	1	1
Katapang	0	0	0	0	8
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	6
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	1
Rancasari	0	0	0	0	0
Total	6	6	12	51	131

Source: JICA Survey Team

Table 11 Estimated Inundated Paddy Fields and Respective Inundation Depth and Recurrence (Without Project)

(Unit: km²)

Kecamatan	Total Area of Inundated Paddy Field				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	1.6	2.4	2.9	3.4	3.9
Rancaekek	9.4	13.5	17.5	20.3	22.8
Bojongsoang	0.0	0.0	0.2	0.5	3.2
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.1	0.1	0.3	1.2
Cicalengka	1.2	1.7	1.9	2.1	2.1
Cikancung	1.4	1.9	2.2	2.4	2.5
Paseh	1.8	3.1	3.9	4.2	4.3
Solokan jeruk	2.1	4.2	5.4	8.6	10.1
Ciparay	0.8	1.5	2.3	3.1	4.2
Majalaya	0.2	0.6	0.8	1.1	1.5
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.1	0.2	0.3	0.5
Cangkuang	0.4	0.6	1.0	1.2	1.5
Pameungpeuk	0.0	0.7	1.0	1.4	2.1
Banjaran	0.3	0.4	0.4	0.5	0.5
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.1	0.2	0.2	0.2	0.3
Rancasari	0.0	0.0	0.0	0.1	0.4
Total	19.4	30.9	40.0	49.6	61.0

(Unit: km²)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.2
Rancaekek	0.1	1.1	1.7	2.4	3.3
Bojongsoang	0.0	0.0	0.0	0.1	0.4
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.1
Cicalengka	0.0	0.3	0.6	0.7	0.7
Cikancung	0.0	0.0	0.1	0.2	0.3
Paseh	0.2	0.7	1.3	1.5	1.5
Solokan jeruk	0.0	0.1	0.2	0.4	1.2
Ciparay	0.0	0.1	0.3	0.5	0.9
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.1
Cangkuang	0.0	0.2	0.5	0.6	0.5
Pameungpeuk	0.0	0.0	0.0	0.1	0.2
Banjaran	0.0	0.1	0.2	0.2	0.2
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.1	0.1	0.1	0.1
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.6	2.7	4.9	6.9	9.7

(Unit: km²)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	1.6	2.4	2.8	3.0	2.9
Rancaekek	8.3	10.1	12.4	13.4	13.5
Bojongsoang	0.0	0.0	0.2	0.2	1.8
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.1	0.1	0.3	1.0
Cicalengka	0.9	0.9	0.9	0.9	0.9
Cikancung	1.4	1.7	1.9	1.7	1.7
Paseh	0.9	1.4	2.0	2.1	1.7
Solokan jeruk	1.9	3.7	4.4	6.0	5.7
Ciparay	0.6	1.1	1.6	1.5	1.9
Majalaya	0.2	0.6	0.8	1.1	1.5
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.1	0.1	0.2
Cangkuang	0.2	0.2	0.2	0.2	0.4
Pameungpeuk	0.0	0.6	0.9	1.1	1.7
Banjaran	0.2	0.1	0.1	0.1	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.1	0.1	0.0	0.1	0.0
Rancasari	0.0	0.0	0.0	0.0	0.2
Total	16.3	23.0	28.4	32.0	35.2

(Unit: km²)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.0
Rancaekek	0.0	0.0	0.1	0.1	0.3
Bojongsoang	0.0	0.0	0.0	0.0	0.0
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.0
Cicalengka	0.0	0.0	0.0	0.0	0.0
Cikancung	0.0	0.0	0.0	0.0	0.0
Paseh	0.0	0.0	0.1	0.2	0.4
Solokan jeruk	0.0	0.0	0.0	0.0	0.0
Ciparay	0.0	0.0	0.0	0.0	0.1
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.0
Cangkuang	0.0	0.0	0.0	0.3	0.5
Pameungpeuk	0.0	0.0	0.0	0.0	0.0
Banjaran	0.0	0.0	0.0	0.0	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.0	0.0	0.0	0.1
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.2	0.7	1.5

(Unit: km²)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.3	0.7
Rancaekek	1.0	2.3	3.3	4.3	5.8
Bojongsoang	0.0	0.0	0.0	0.1	1.0
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.1
Cicalengka	0.3	0.5	0.4	0.5	0.5
Cikancung	0.0	0.2	0.3	0.4	0.5
Paseh	0.7	0.9	0.5	0.4	0.6
Solokan jeruk	0.2	0.4	0.9	2.1	3.2
Ciparay	0.1	0.3	0.4	1.1	1.2
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.1	0.1
Cangkuang	0.2	0.2	0.3	0.1	0.2
Pameungpeuk	0.0	0.0	0.0	0.2	0.2
Banjaran	0.1	0.1	0.1	0.1	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.0	0.1	0.0	0.0
Rancasari	0.0	0.0	0.0	0.0	0.1
Total	2.5	5.1	6.4	9.9	14.5

(Unit: km²)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.0
Rancaekek	0.0	0.0	0.0	0.0	0.0
Bojongsoang	0.0	0.0	0.0	0.0	0.0
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.0
Cicalengka	0.0	0.0	0.0	0.0	0.0
Cikancung	0.0	0.0	0.0	0.0	0.0
Paseh	0.0	0.0	0.0	0.0	0.0
Solokan jeruk	0.0	0.0	0.0	0.0	0.0
Ciparay	0.0	0.0	0.0	0.0	0.0
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.0
Cangkuang	0.0	0.0	0.0	0.0	0.0
Pameungpeuk	0.0	0.0	0.0	0.0	0.0
Banjaran	0.0	0.0	0.0	0.0	0.0
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.0	0.0	0.0	0.0
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.1

Source: JICA Survey Team

Table 12 Estimated Inundated Paddy Fields and Respective Inundation Depth and Recurrence (With Project)

(Unit: km²)

Kecamatan	Total Area of Inundated Paddy Field				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.2	0.9	1.6	2.3	3.3
Rancaekek	7.8	12.1	16.8	20.4	22.5
Bojongsoang	0.0	0.0	0.0	0.3	2.1
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.1	0.1	0.4	0.9
Cicalengka	1.3	1.7	1.9	2.1	2.1
Cikancung	1.4	1.9	2.2	2.3	2.4
Paseh	1.8	3.1	3.9	4.2	4.3
Solokan jeruk	1.6	4.2	5.6	7.8	10.3
Ciparay	0.2	1.0	2.0	3.0	4.0
Majalaya	0.2	0.4	0.5	0.8	1.8
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.1	0.1	0.3	0.5
Cangkuang	0.4	0.6	1.0	1.2	1.5
Pameungpeuk	0.0	0.7	1.0	1.4	2.1
Banjaran	0.3	0.4	0.4	0.5	0.5
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.1	0.2	0.2	0.2	0.3
Rancasari	0.0	0.0	0.0	0.0	0.3
Total	15.5	27.5	37.4	47.2	59.1

(Unit: km²)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.1
Rancaekek	0.0	0.5	1.0	1.8	2.6
Bojongsoang	0.0	0.0	0.0	0.0	0.3
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.0
Cicalengka	0.0	0.3	0.6	0.7	0.8
Cikancung	0.0	0.0	0.1	0.2	0.3
Paseh	0.2	1.1	1.3	1.5	1.5
Solokan jeruk	0.0	0.1	0.2	0.4	1.2
Ciparay	0.0	0.0	0.2	0.5	1.0
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.1
Cangkuang	0.0	0.2	0.5	0.6	0.5
Pameungpeuk	0.0	0.0	0.0	0.1	0.2
Banjaran	0.0	0.1	0.2	0.2	0.2
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.1	0.1	0.1	0.1
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.4	2.3	4.1	6.2	8.8

(Unit: km²)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.2	0.9	1.6	2.3	2.8
Rancaekek	7.1	9.8	12.9	14.4	14.4
Bojongsoang	0.0	0.0	0.0	0.2	1.4
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.1	0.1	0.3	0.8
Cicalengka	1.0	0.9	0.9	0.9	0.8
Cikancung	1.4	1.7	1.9	1.8	1.7
Paseh	0.8	1.4	2.0	2.1	1.8
Solokan jeruk	1.5	3.7	4.4	5.1	5.9
Ciparay	0.2	0.8	1.4	1.5	1.9
Majalaya	0.2	0.4	0.5	0.8	1.8
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.1	0.1	0.2
Cangkuang	0.2	0.2	0.2	0.2	0.4
Pameungpeuk	0.0	0.6	0.9	1.2	1.7
Banjaran	0.2	0.1	0.1	0.1	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.1	0.1	0.0	0.1	0.0
Rancasari	0.0	0.0	0.0	0.0	0.2
Total	12.9	20.7	27.0	31.1	35.9

(Unit: km²)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.0
Rancaekek	0.0	0.0	0.0	0.1	0.2
Bojongsoang	0.0	0.0	0.0	0.0	0.0
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.0
Cicalengka	0.0	0.0	0.0	0.0	0.0
Cikancung	0.0	0.0	0.0	0.0	0.0
Paseh	0.0	0.0	0.1	0.2	0.4
Solokan jeruk	0.0	0.0	0.0	0.0	0.0
Ciparay	0.0	0.0	0.0	0.0	0.1
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.0
Cangkuang	0.0	0.0	0.0	0.3	0.5
Pameungpeuk	0.0	0.0	0.0	0.0	0.0
Banjaran	0.0	0.0	0.0	0.0	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.0	0.0	0.0	0.1
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.2	0.7	1.4

(Unit: km²)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.1	0.4
Rancaekek	0.7	1.8	2.9	4.0	5.3
Bojongsoang	0.0	0.0	0.0	0.1	0.4
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.1
Cicalengka	0.3	0.5	0.4	0.5	0.5
Cikancung	0.0	0.2	0.3	0.4	0.5
Paseh	0.8	0.7	0.5	0.4	0.6
Solokan jeruk	0.1	0.5	1.1	2.2	3.3
Ciparay	0.0	0.1	0.4	1.0	1.1
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.1	0.1
Cangkuang	0.2	0.2	0.3	0.1	0.2
Pameungpeuk	0.0	0.0	0.0	0.2	0.2
Banjaran	0.1	0.1	0.1	0.1	0.1
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.1	0.1	0.0	0.0
Rancasari	0.0	0.0	0.0	0.0	0.1
Total	2.2	4.3	6.1	9.3	13.0

(Unit: km²)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0.0	0.0	0.0	0.0	0.0
Rancaekek	0.0	0.0	0.0	0.0	0.0
Bojongsoang	0.0	0.0	0.0	0.0	0.0
Dayeuhkolot	0.0	0.0	0.0	0.0	0.0
Baleendah	0.0	0.0	0.0	0.0	0.0
Cicalengka	0.0	0.0	0.0	0.0	0.0
Cikancung	0.0	0.0	0.0	0.0	0.0
Paseh	0.0	0.0	0.0	0.0	0.0
Solokan jeruk	0.0	0.0	0.0	0.0	0.0
Ciparay	0.0	0.0	0.0	0.0	0.0
Majalaya	0.0	0.0	0.0	0.0	0.0
Ibun	0.0	0.0	0.0	0.0	0.0
Kutawaringin	0.0	0.0	0.0	0.0	0.0
Margaasih	0.0	0.0	0.0	0.0	0.0
Katapang	0.0	0.0	0.0	0.0	0.0
Cangkuang	0.0	0.0	0.0	0.0	0.0
Pameungpeuk	0.0	0.0	0.0	0.0	0.0
Banjaran	0.0	0.0	0.0	0.0	0.0
Arajsari	0.0	0.0	0.0	0.0	0.0
Margahayu	0.0	0.0	0.0	0.0	0.0
Rancasari	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.1

Source: JICA Survey Team

Table 13 Estimated Number of Inundated Industrial Facilities/Factories and Respective Inundation Depth and Recurrence (Without Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Industrial Facilities				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	22	30	30	32	34
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	1	1	6
Baleendah	0	0	0	0	9
Cicalengka	3	5	8	9	10
Cikancung	4	5	7	9	9
Paseh	0	0	0	0	0
Solokan jeruk	4	5	5	5	5
Ciparay	0	0	1	1	1
Majalaya	0	3	3	4	15
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	1	1	1	3
Cangkuang	0	0	0	0	0
Pameungpeuk	1	1	2	3	10
Banjaran	0	0	0	0	1
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	35	51	57	65	102

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	1	2	2	4
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	2
Baleendah	0	0	0	0	1
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	1
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	1
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	1	2	2	3	9

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	20	26	25	25	26
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	1	3
Baleendah	0	0	0	0	7
Cicalengka	3	5	6	7	7
Cikancung	4	5	7	9	9
Paseh	0	0	0	0	0
Solokan jeruk	4	5	5	4	4
Ciparay	0	0	0	0	0
Majalaya	0	3	3	4	15
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	1	1	0	2
Cangkuang	0	0	0	0	0
Pameungpeuk	0	1	1	2	7
Banjaran	0	0	0	0	1
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	33	45	48	52	81

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	0	0	0	0	1

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	1	3	4	5	4
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	1
Baleendah	0	0	0	0	0
Cicalengka	0	1	2	2	3
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	1	1
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	1	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	1	2
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	1	4	7	10	12

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	0	0	0	0	0

Source: JICA Survey Team

Table 14 Estimated Number of Inundated Industrial Facilities/Factories and Respective Inundation Depth and Recurrence (With Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Industrial Facilities				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	9	16	28	30	32
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	1	1	6
Baleendah	0	0	0	0	9
Cicalengka	3	5	8	9	10
Cikancung	4	5	7	9	9
Paseh	0	0	0	0	0
Solokan jeruk	0	2	2	5	5
Ciparay	0	0	1	1	1
Majalaya	0	0	0	4	37
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	1	1	1	3
Cangkuang	0	0	0	0	0
Pameungpeuk	1	1	2	3	10
Banjaran	0	0	0	0	1
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	18	31	49	63	122

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	1	1	1	1	1
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	3
Baleendah	0	0	0	0	1
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	1
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	1
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	1	1	1	2	7

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	8	15	27	28	27
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	3
Baleendah	0	0	0	0	7
Cicalengka	3	5	6	6	7
Cikancung	4	5	7	9	9
Paseh	0	0	0	0	0
Solokan jeruk	0	2	2	5	5
Ciparay	0	0	0	0	0
Majalaya	0	0	0	4	37
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	1	1	0	2
Cangkuang	0	0	0	0	0
Pameungpeuk	0	1	1	2	7
Banjaran	0	0	0	0	1
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	16	28	44	55	105

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	0	0	0	0	0

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	1	1	1	4
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	1
Baleendah	0	0	0	0	0
Cicalengka	0	1	2	3	3
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	1	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	1	2
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	0	2	4	6	10

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsoang	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	0
Rancasari	0	0	0	0	0
Total	0	0	0	0	0

Source: JICA Survey Team

Table 15 Estimated Number of Inundated Social Facilities and Respective Inundation Depth and Recurrence (Without Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Social Facilities				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	1	7	9	13	16
Rancaekek	148	205	240	279	356
Bojongsong	4	4	5	8	87
Dayeuhkolot	0	0	3	3	8
Baleendah	0	1	1	7	58
Cicalengka	26	31	39	41	42
Cikancung	4	14	16	17	19
Paseh	12	18	33	39	39
Solokan jeruk	41	57	72	133	148
Ciparay	27	39	59	74	102
Majalaya	4	20	22	43	83
Ibun	0	0	0	1	1
Kutawaringin	2	8	13	16	17
Margaasih	1	1	4	5	5
Katapang	0	2	3	18	27
Cangkuang	10	16	17	17	17
Pameungpeuk	1	17	24	31	44
Banjaran	4	5	5	6	6
Arajsari	0	0	0	0	0
Margahayu	2	5	10	11	16
Rancasari	0	0	0	1	1
Total	287	450	575	763	1,092

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	5
Rancaekek	4	9	17	25	36
Bojongsong	0	0	0	1	4
Dayeuhkolot	0	0	0	0	5
Baleendah	0	0	0	0	7
Cicalengka	0	3	6	11	11
Cikancung	0	0	0	0	0
Paseh	0	0	1	7	7
Solokan jeruk	3	7	9	12	16
Ciparay	3	4	12	21	24
Majalaya	0	0	0	0	1
Ibun	0	0	0	0	0
Kutawaringin	0	3	0	1	3
Margaasih	1	1	1	1	0
Katapang	0	1	1	0	11
Cangkuang	0	4	9	11	6
Pameungpeuk	0	0	0	4	11
Banjaran	0	0	0	3	3
Arajsari	0	0	0	0	0
Margahayu	0	1	1	3	8
Rancasari	0	0	0	0	0
Total	11	33	57	100	158

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	1	7	9	8	9
Rancaekek	135	169	187	206	251
Bojongsong	4	4	5	6	46
Dayeuhkolot	0	0	3	3	3
Baleendah	0	1	0	6	36
Cicalengka	24	17	20	21	21
Cikancung	4	14	16	17	19
Paseh	12	11	26	30	25
Solokan jeruk	32	45	56	95	82
Ciparay	18	20	36	38	47
Majalaya	4	20	22	43	76
Ibun	0	0	0	1	0
Kutawaringin	2	3	6	8	4
Margaasih	0	0	3	4	0
Katapang	0	1	2	6	8
Cangkuang	7	7	3	3	3
Pameungpeuk	1	17	24	23	31
Banjaran	4	2	2	3	2
Arajsari	0	0	0	0	0
Margahayu	2	2	4	5	3
Rancasari	0	0	0	1	0
Total	250	340	424	527	666

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	1	4	5	6
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	3
Ciparay	0	0	0	1	3
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	5	5	3
Margaasih	0	0	0	0	1
Katapang	0	0	0	2	2
Cangkuang	0	0	0	3	8
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	1	1	1
Rancasari	0	0	0	0	0
Total	0	1	10	17	27

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	5	2
Rancaekek	9	26	32	43	63
Bojongsong	0	0	0	1	37
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	1	1	15
Cicalengka	2	11	13	9	10
Cikancung	0	0	0	0	0
Paseh	0	7	6	2	7
Solokan jeruk	6	5	7	26	47
Ciparay	6	15	11	14	28
Majalaya	0	0	0	0	6
Ibun	0	0	0	0	1
Kutawaringin	0	2	2	2	5
Margaasih	0	0	0	0	4
Katapang	0	0	0	10	6
Cangkuang	3	5	5	0	0
Pameungpeuk	0	0	0	4	2
Banjaran	0	3	3	0	1
Arajsari	0	0	0	0	0
Margahayu	0	2	4	2	3
Rancasari	0	0	0	0	1
Total	26	76	84	119	238

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	2
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	1
Rancasari	0	0	0	0	0
Total	0	0	0	0	3

Source: JICA Survey Team

Table 16 Estimated Number of Inundated Social Facilities and Respective Inundation Depth and Recurrence (With Project)

(Unit: nos)

Kecamatan	Total Number of Inundated Social Facilities				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	1	2	12
Rancaekek	134	208	266	293	343
Bojongsong	0	0	0	1	56
Dayeuhkolot	0	0	3	4	9
Baleendah	0	1	1	15	42
Cicalengka	26	32	39	41	42
Cikancung	4	14	16	17	18
Paseh	12	18	33	39	39
Solokan jeruk	29	62	75	120	156
Ciparay	18	36	49	73	99
Majalaya	3	16	18	34	94
Ibun	0	1	1	1	1
Kutawaringin	2	5	10	13	17
Margaasih	1	1	4	5	5
Katapang	0	2	3	18	27
Cangkuang	10	16	17	17	17
Pameungpeuk	1	17	24	32	44
Banjaran	4	5	5	6	6
Arajsari	0	0	0	0	0
Margahayu	2	6	10	13	16
Rancasari	0	0	0	0	1
Total	246	440	575	744	1,044

(Unit: nos)

Kecamatan	Inundation Depth : 1.00 - 1.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	6	7	12	23	34
Bojongsong	0	0	0	0	2
Dayeuhkolot	0	0	0	0	5
Baleendah	0	0	0	0	1
Cicalengka	0	3	6	11	11
Cikancung	0	0	0	0	0
Paseh	0	0	4	7	7
Solokan jeruk	0	1	6	10	14
Ciparay	0	3	6	19	25
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	3	2	1	2
Margaasih	1	1	1	1	0
Katapang	0	1	1	0	11
Cangkuang	0	4	9	11	6
Pameungpeuk	0	0	0	4	11
Banjaran	0	0	0	3	3
Arajsari	0	0	0	0	0
Margahayu	0	1	1	2	8
Rancasari	0	0	0	0	0
Total	7	24	48	92	140

(Unit: nos)

Kecamatan	Inundation Depth : 0.00 - 0.49 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	1	2	6
Rancaekek	112	179	212	222	251
Bojongsong	0	0	0	0	41
Dayeuhkolot	0	0	3	1	4
Baleendah	0	1	0	14	32
Cicalengka	24	18	20	21	22
Cikancung	4	14	16	17	18
Paseh	12	11	26	31	25
Solokan jeruk	27	54	62	87	99
Ciparay	15	26	27	39	48
Majalaya	3	16	18	32	88
Ibun	0	1	1	1	0
Kutawaringin	2	1	3	6	4
Margaasih	0	0	3	4	1
Katapang	0	1	1	5	8
Cangkuang	7	7	3	3	3
Pameungpeuk	1	17	24	24	31
Banjaran	4	2	2	3	3
Arajsari	0	0	0	0	0
Margahayu	2	2	4	7	2
Rancasari	0	0	0	0	0
Total	213	350	426	519	686

(Unit: nos)

Kecamatan	Inundation Depth : 2.00 - 2.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	4	4	4	4	4
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	1
Ciparay	0	0	0	0	2
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	3	5	5
Margaasih	0	0	0	0	1
Katapang	0	0	0	2	2
Cangkuang	0	0	0	3	8
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	1	1	2	1
Rancasari	0	0	0	0	0
Total	4	5	8	16	24

(Unit: nos)

Kecamatan	Inundation Depth : 0.50 - 0.99 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	6
Rancaekek	12	18	38	44	54
Bojongsong	0	0	0	1	13
Dayeuhkolot	0	0	0	3	0
Baleendah	0	0	1	1	9
Cicalengka	2	11	13	9	9
Cikancung	0	0	0	0	0
Paseh	0	7	3	1	7
Solokan jeruk	2	7	7	23	42
Ciparay	3	7	16	15	24
Majalaya	0	0	0	2	6
Ibun	0	0	0	0	1
Kutawaringin	0	1	2	1	6
Margaasih	0	0	0	0	3
Katapang	0	0	1	11	6
Cangkuang	3	5	5	0	0
Pameungpeuk	0	0	0	4	2
Banjaran	0	3	3	0	0
Arajsari	0	0	0	0	0
Margahayu	0	2	4	2	4
Rancasari	0	0	0	0	1
Total	22	61	93	117	193

(Unit: nos)

Kecamatan	Inundation Depth : more than 3.00 m				
	2-year	5-year	10-year	20-year	50-year
Cileunyi	0	0	0	0	0
Rancaekek	0	0	0	0	0
Bojongsong	0	0	0	0	0
Dayeuhkolot	0	0	0	0	0
Baleendah	0	0	0	0	0
Cicalengka	0	0	0	0	0
Cikancung	0	0	0	0	0
Paseh	0	0	0	0	0
Solokan jeruk	0	0	0	0	0
Ciparay	0	0	0	0	0
Majalaya	0	0	0	0	0
Ibun	0	0	0	0	0
Kutawaringin	0	0	0	0	0
Margaasih	0	0	0	0	0
Katapang	0	0	0	0	0
Cangkuang	0	0	0	0	0
Pameungpeuk	0	0	0	0	0
Banjaran	0	0	0	0	0
Arajsari	0	0	0	0	0
Margahayu	0	0	0	0	1
Rancasari	0	0	0	0	0
Total	0	0	0	0	1

Source: JICA Survey Team

**Table 17 Estimated Damage Amounts for Houses
(Without and With Project)**

(1) Building

(Unit : Rp. Million)

without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	104,493	15,597	16,147	478	373	137,089
5-year	141,848	31,082	29,090	8,920	373	211,314
10-year	160,193	48,037	55,626	18,687	1,061	283,604
20-year	225,736	58,127	109,849	24,835	1,061	419,609
50-year	268,933	128,400	157,078	50,447	1,983	606,841
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	83,155	8,502	6,782	17,832	373	116,644
5-year	131,397	24,075	15,550	18,080	373	189,475
10-year	162,431	46,232	35,124	21,885	755	266,427
20-year	230,020	59,883	89,518	23,358	3,181	405,960
50-year	277,342	121,778	145,774	36,978	8,170	590,043

(2) Household Assets

(Unit : Rp. Million)

without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	82,345	21,364	15,419	383	222	119,732
5-year	111,782	42,575	27,778	7,136	222	189,493
10-year	126,239	65,798	53,116	14,950	630	260,734
20-year	177,890	79,619	104,894	19,868	630	382,902
50-year	211,931	175,876	149,992	40,358	1,178	579,334
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	65,529	11,646	6,476	14,265	222	98,138
5-year	103,546	32,977	14,848	14,464	222	166,057
10-year	128,003	63,326	33,540	17,508	449	242,825
20-year	181,266	82,024	85,480	18,686	1,890	369,346
50-year	218,558	166,805	139,198	29,583	4,854	558,998

Source: JICA Survey Team

**Table 18 Estimated Damage Amounts for Paddy Fields
(Without and With Project)**

(1) Paddy

(Unit : Rp. Million)

without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	3,915	1,002	329	6	18	5,270
5-year	5,516	2,059	1,585	14	18	9,193
10-year	6,818	2,552	2,922	125	24	12,442
20-year	7,692	3,979	4,083	420	24	16,198
50-year	8,451	5,808	5,751	885	49	20,944
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	3,085	875	225	9	18	4,213
5-year	4,979	1,721	1,386	18	18	8,121
10-year	6,484	2,421	2,455	98	24	11,481
20-year	7,460	3,715	3,648	393	24	15,241
50-year	8,606	5,207	5,204	817	49	19,884

Source: JICA Survey Team

**Table 19 Estimated Damage Amounts for Industrial Facilities/Factories
(Without and With Project)**

(1) Building (Unit : Rp. Million)						
without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	4,903	251	287	0	0	5,441
5-year	6,652	757	690	0	0	8,099
10-year	7,023	1,414	979	76	0	9,492
20-year	7,610	1,919	1,204	437	0	11,170
50-year	11,948	2,339	3,634	713	0	18,635
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	2,409	75	438	89	0	3,011
5-year	4,168	359	438	89	0	5,054
10-year	6,498	819	461	89	0	7,868
20-year	8,131	1,180	711	404	0	10,425
50-year	15,485	1,875	2,836	404	0	20,600

(2) Depreciable Assets (Unit : Rp. Million)						
without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	49,455	3,826	3,400	0	0	56,681
5-year	67,103	11,520	8,188	0	0	86,810
10-year	70,840	21,534	11,619	504	0	104,497
20-year	76,761	29,217	14,286	2,912	0	123,177
50-year	120,521	35,621	43,113	4,752	0	204,007
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	24,304	1,142	5,201	590	0	31,237
5-year	42,043	5,469	5,201	590	0	53,303
10-year	65,549	12,476	5,474	590	0	84,090
20-year	82,015	17,961	8,438	2,688	0	111,101
50-year	156,197	28,549	33,654	2,688	0	221,088

(3) Inventory Stock (Unit : Rp. Million)						
without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	4,263	352	394	0	0	5,010
5-year	5,784	1,061	950	0	0	7,795
10-year	6,106	1,983	1,348	73	0	9,510
20-year	6,617	2,690	1,658	422	0	11,387
50-year	10,388	3,280	5,003	689	0	19,361
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	2,095	105	604	86	0	2,889
5-year	3,624	504	604	86	0	4,817
10-year	5,650	1,149	635	86	0	7,520
20-year	7,069	1,654	979	390	0	10,092
50-year	13,464	2,629	3,905	390	0	20,387

(4) Suspension/Stagnancy of Business Operation (Unit : Rp. Million)						
without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	6,574	373	311	0	0	7,258
5-year	8,920	1,123	458	0	0	10,502
10-year	9,417	2,099	650	61	0	12,228
20-year	10,204	2,848	800	355	0	14,207
50-year	16,022	3,472	2,413	579	0	22,486
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	3,231	111	291	72	0	3,705
5-year	5,589	533	291	72	0	6,485
10-year	8,714	1,216	306	72	0	10,308
20-year	10,903	1,751	472	328	0	13,453
50-year	20,764	2,783	1,884	328	0	25,758

Source: JICA Survey Team

**Table 20 Estimated Damage Amounts for Social Facilities
(Without and With Project)**

(1) Building

(Unit : Rp. Million)

without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	2,300	309	293	0	0	2,902
5-year	3,128	904	878	58	0	4,968
10-year	3,901	1,000	1,516	580	0	6,997
20-year	4,848	1,416	2,660	986	0	9,911
50-year	6,127	2,832	4,203	1,566	250	14,978
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	1,960	262	186	232	0	2,640
5-year	3,220	726	638	290	0	4,874
10-year	3,919	1,107	1,277	464	0	6,767
20-year	4,775	1,392	2,447	928	0	9,542
50-year	6,311	2,297	3,724	1,392	83	13,807

(2) Assets

(Unit : Rp. Million)

without Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	1,813	424	279	0	0	2,516
5-year	2,465	1,239	838	46	0	4,588
10-year	3,074	1,369	1,448	464	0	6,355
20-year	3,821	1,940	2,540	789	0	9,089
50-year	4,829	3,879	4,013	1,253	149	14,123
with Project	0.0 - 0.5 m	0.5 - 1.0 m	1.0 - 2.0 m	2.0 - 3.0 m	3.0 m -	Total
2-year	1,544	359	178	186	0	2,266
5-year	2,538	994	610	232	0	4,373
10-year	3,089	1,516	1,219	371	0	6,195
20-year	3,763	1,907	2,337	742	0	8,749
50-year	4,974	3,146	3,556	1,114	50	12,839

Source: JICA Survey Team

Table 21 Estimated Annual Flood Damage Under Without Project and With Project

(Unit : Rp. Million)

Without Project	2-year	5-year	10-year	20-year	50-year	Annual Average
Houses	256,820	400,807	544,338	802,511	1,186,175	209,403
Building	137,089	211,314	283,604	419,609	606,841	109,983
Household Assets	119,732	189,493	260,734	382,902	579,334	99,419
Paddy	5,270	9,193	12,442	16,198	20,944	4,524
Industry	74,389	113,497	136,140	160,449	266,021	54,477
Building	5,441	8,099	9,492	11,170	18,635	3,874
Depreciable Assets	56,681	86,810	104,497	123,177	204,007	41,689
Inventory Stock	5,010	7,795	9,510	11,387	19,361	3,770
Business Operations	7,258	10,793	12,641	14,715	24,018	5,144
Social-Infrastructure	5,418	9,557	13,352	19,000	29,101	4,922
Building	2,902	4,968	6,997	9,911	14,978	2,575
Assets	2,516	4,588	6,355	9,089	14,123	2,347
Road	71,910	112,226	152,415	224,703	332,129	58,633
Total	413,808	645,279	858,686	1,222,860	1,834,370	331,958
Total Annual Average Damage						331,958

(Unit : Rp. Million)

With Project	2-year	5-year	10-year	20-year	50-year	Annual Average
Houses	214,782	355,533	509,252	775,306	1,149,041	189,766
Building	116,644	189,475	266,427	405,960	590,043	100,463
Household Assets	98,138	166,057	242,825	369,346	558,998	89,303
Paddy	4,213	8,121	11,481	15,241	19,884	4,025
Industry	40,843	69,659	109,785	145,072	287,834	38,412
Building	3,011	5,054	7,868	10,425	20,600	2,779
Depreciable Assets	31,237	53,303	84,090	111,101	221,088	29,413
Inventory Stock	2,889	4,817	7,520	10,092	20,387	2,670
Business Operations	3,705	6,485	10,308	13,453	25,758	3,550
Social-Infrastructure	4,906	9,248	12,962	18,291	26,646	4,689
Building	2,640	4,874	6,767	9,542	13,807	2,467
Assets	2,266	4,373	6,195	8,749	12,839	2,222
Road	60,139	99,549	142,591	217,086	321,731	53,134
Sub-total (Direct Damage)	324,882	542,110	786,071	1,170,996	1,805,135	290,027
Total Annual Average Damage						290,027

Expected Annual Benefit of Project = 41,932

Source: JICA Survey Team

Table 22 Project Cost

(Unit: Million)

Cost Item	Financial Cost			Economic Cost		
	F/C Yen	L/C Rp.	Total Equiv. Rp.	F/C Yen	L/C Rp.	Total Equiv. Rp.
1. Construction Cost	0	191,335	191,335	0	172,202	172,202
1.1 Component A	0	168,727	168,727	0	151,855	151,855
1.2 Component B	0	5,000	5,000	0	4,500	4,500
1.3 Component C	0	17,608	17,608	0	15,847	15,847
2 Consulting Service Cost	251	54,468	79,314	251	49,022	73,868
3 Land Acquisition and House Compensation Cost	0	50,850	50,850	0	45,765	45,765
3.1 Land Acquisition	0	32,123	32,123	0	28,911	28,911
3.2 Administration	0	18,727	18,727	0	16,854	16,854
4 Contingencies	0	117,876	117,876	0	14,629	14,629
4.1 Physical Contingency	0	16,254	16,254	0	14,629	14,629
4.2 Price Contingency	0	101,622	101,622	0	0	0
Total	251	414,529	439,375	251	281,616	306,463

Source: JICA Survey Team

Table 23 Annual Flow of Economic Cost and Benefit for the Project

Unit: Billion Rp

Year in order	Year	Cost			Benefit	Net Cash Flow
		Construction	O/M	Total		
1	2011	3	0	3	0	-3
2	2012	21	0	21	0	-21
3	2013	77	0	77	0	-77
4	2014	123	0	123	0	-123
5	2015	77	0	77	0	-77
6	2016	6	0	6	0	-6
7	2017	0	0.7	1	42	41
8	2018	0	0.7	1	42	41
9	2019	0	0.7	1	42	41
10	2020	0	0.7	1	42	41
11	2021	0	0.7	1	42	41
12	2022	0	0.7	1	42	41
13	2023	0	0.7	1	42	41
14	2024	0	0.7	1	42	41
15	2025	0	0.7	1	42	41
16	2026	0	0.7	1	42	41
17	2027	0	0.7	1	42	41
18	2028	0	0.7	1	42	41
19	2029	0	0.7	1	42	41
20	2030	0	0.7	1	42	41
21	2031	0	0.7	1	42	41
22	2032	0	0.7	1	42	41
23	2033	0	0.7	1	42	41
24	2034	0	0.7	1	42	41
25	2035	0	0.7	1	42	41
26	2036	0	0.7	1	42	41
27	2037	0	0.7	1	42	41
28	2038	0	0.7	1	42	41
29	2039	0	0.7	1	42	41
30	2040	0	0.7	1	42	41
31	2041	0	0.7	1	42	41
32	2042	0	0.7	1	42	41
33	2043	0	0.7	1	42	41
34	2044	0	0.7	1	42	41
35	2045	0	0.7	1	42	41
36	2046	0	0.7	1	42	41
Total		306	22	328	1,258	930
EIRR		10.3%				
B/C		1.04 (at discount rate: 10 %)				
NPV		10.17 (at discount rate: 10 %)				

Source: JICA Survey Team

**Table 24 Annual Flow of Economic Cost and Benefit for the Project
in Case of Project Life 50 years**

Unit: Billion Rp

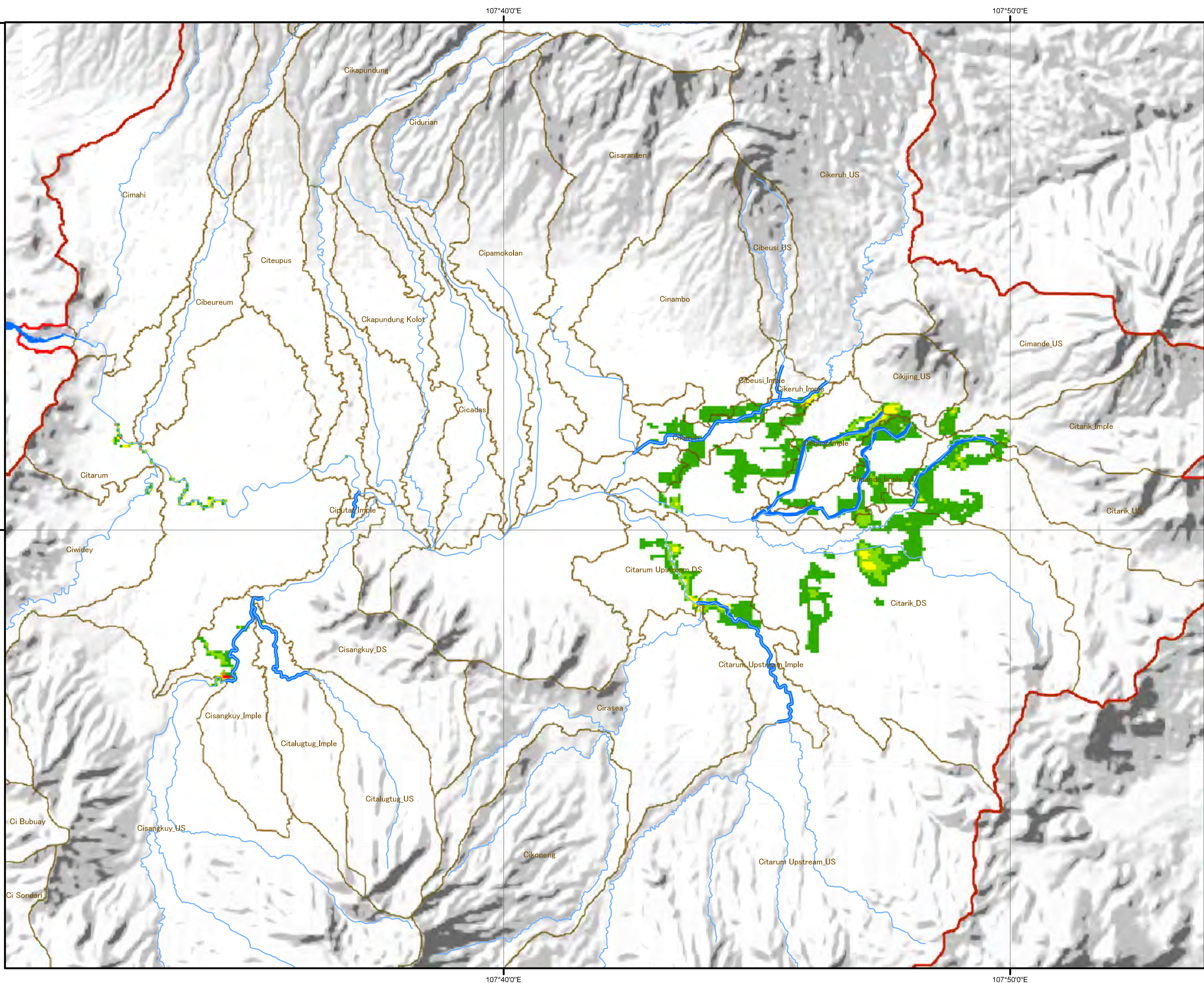
Year in order	Year	Cost		Total	Benefit	Net Cash Flow
		Construction	O/M			
1	2011	3	0	3	0	-3
2	2012	21	0	21	0	-21
3	2013	77	0	77	0	-77
4	2014	123	0	123	0	-123
5	2015	77	0	77	0	-77
6	2016	6	0	6	0	-6
7	2017	0	0.7	0.7	42	41
8	2018	0	0.7	0.7	42	41
9	2019	0	0.7	0.7	42	41
10	2020	0	0.7	0.7	42	41
11	2021	0	0.7	0.7	42	41
12	2022	0	0.7	0.7	42	41
13	2023	0	0.7	0.7	42	41
14	2024	0	0.7	0.7	42	41
15	2025	0	0.7	0.7	42	41
16	2026	0	0.7	0.7	42	41
17	2027	0	0.7	0.7	42	41
18	2028	0	0.7	0.7	42	41
19	2029	0	0.7	0.7	42	41
20	2030	0	0.7	0.7	42	41
21	2031	0	0.7	0.7	42	41
22	2032	0	0.7	0.7	42	41
23	2033	0	0.7	0.7	42	41
24	2034	0	0.7	0.7	42	41
25	2035	0	0.7	0.7	42	41
26	2036	0	0.7	0.7	42	41
27	2037	0	0.7	0.7	42	41
28	2038	0	0.7	0.7	42	41
29	2039	0	0.7	0.7	42	41
30	2040	0	0.7	0.7	42	41
31	2041	0	0.7	0.7	42	41
32	2042	0	0.7	0.7	42	41
33	2043	0	0.7	0.7	42	41
34	2044	0	0.7	0.7	42	41
35	2045	0	0.7	0.7	42	41
36	2046	0	0.7	0.7	42	41
37	2047	0	0.7	0.7	42	41
38	2048	0	0.7	0.7	42	41
39	2049	0	0.7	0.7	42	41
40	2050	0	0.7	0.7	42	41
41	2051	0	0.7	0.7	42	41
42	2052	0	0.7	0.7	42	41
43	2053	0	0.7	0.7	42	41
44	2054	0	0.7	0.7	42	41
45	2055	0	0.7	0.7	42	41
46	2056	0	0.7	0.7	42	41
47	2057	0	0.7	0.7	42	41
48	2058	0	0.7	0.7	42	41
49	2059	0	0.7	0.7	42	41
50	2060	0	0.7	0.7	42	41
51	2061	0	0.7	0.7	42	41
52	2062	0	0.7	0.7	42	41
53	2063	0	0.7	0.7	42	41
54	2064	0	0.7	0.7	42	41
55	2065	0	0.7	0.7	42	41
56	2066	0	0.7	0.7	42	41
Total		306	36	342	2,097	1,754
EIRR		10.7%				
B/C		1.10			(at discount rate: 10 %)	
NPV		22.66			(at discount rate: 10 %)	

Source: JICA Survey Team

APPENDIX VII-2:

DRAWINGS OF FLOOD ANALYSIS

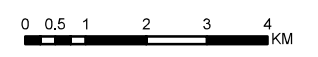
1) Without Project



**ASBUILD EXISTING
(2 years)**



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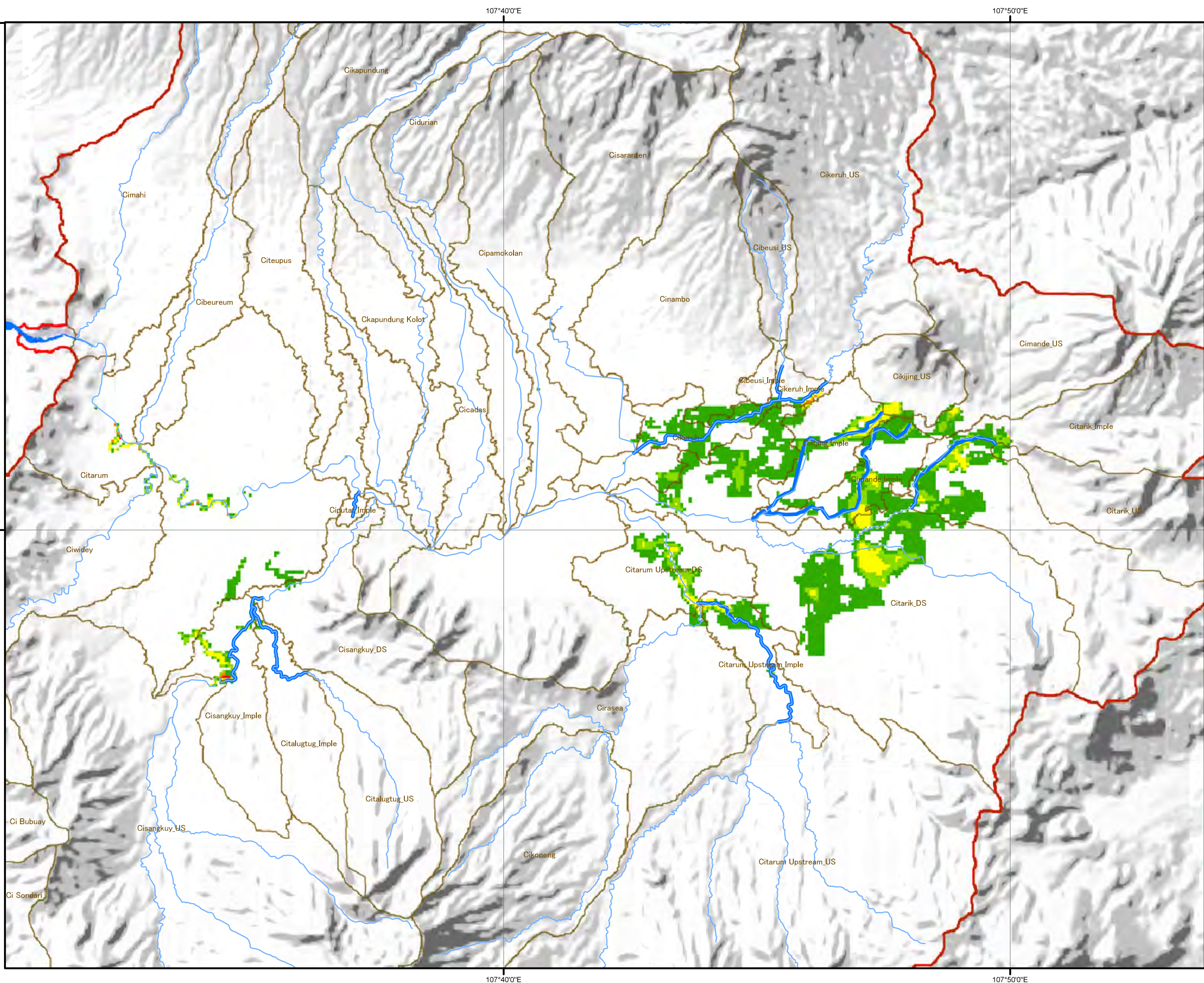


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-EX_2YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

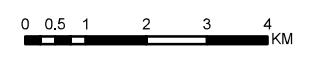
**The Preparatory
Survey for Citarum
Upper Basin
Tributaries Flood
Management Project**



**ASBUILD EXISTING
(5 years)**



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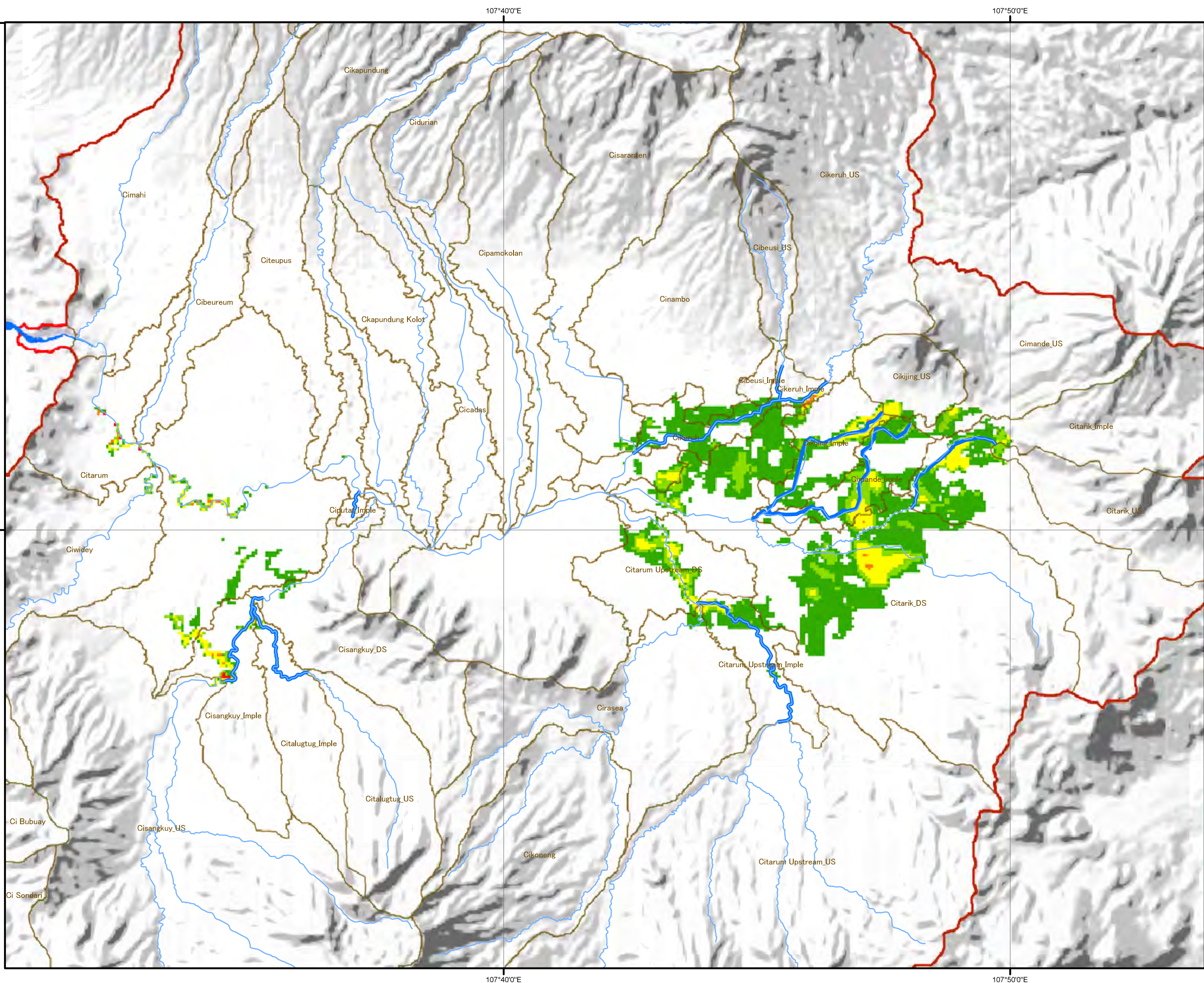


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-EX_5YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

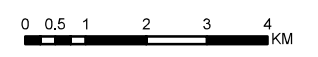
**The Preparatory
Survey for Citarum
Upper Basin
Tributaries Flood
Management Project**



**ASBUILD EXISTING
(10 years)**



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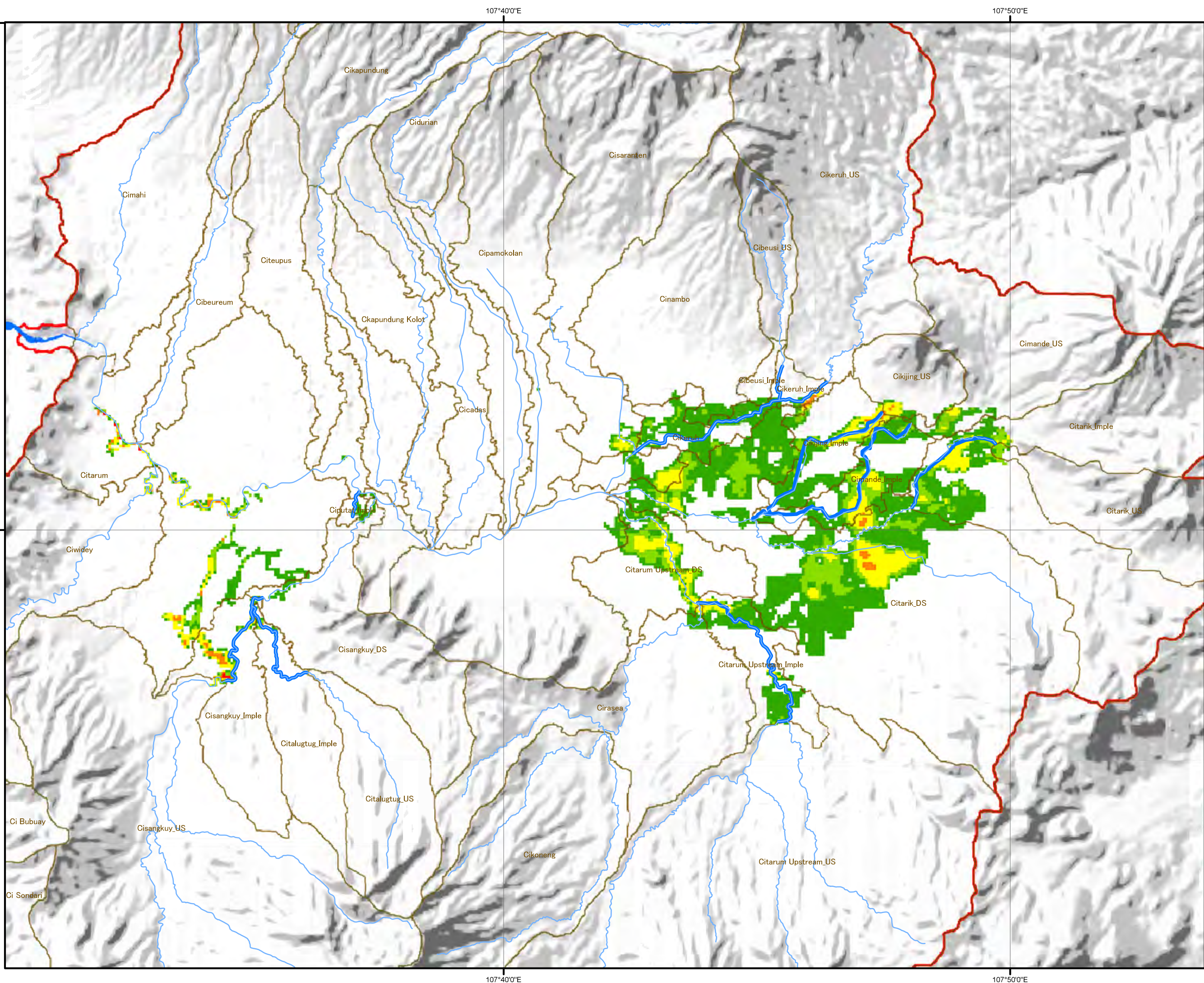


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-EX_10YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

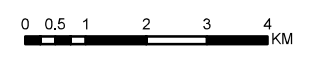
**The Preparatory
Survey for Citarum
Upper Basin
Tributaries Flood
Management Project**



**ASBUILD EXISTING
(20 years)**



1:125,000

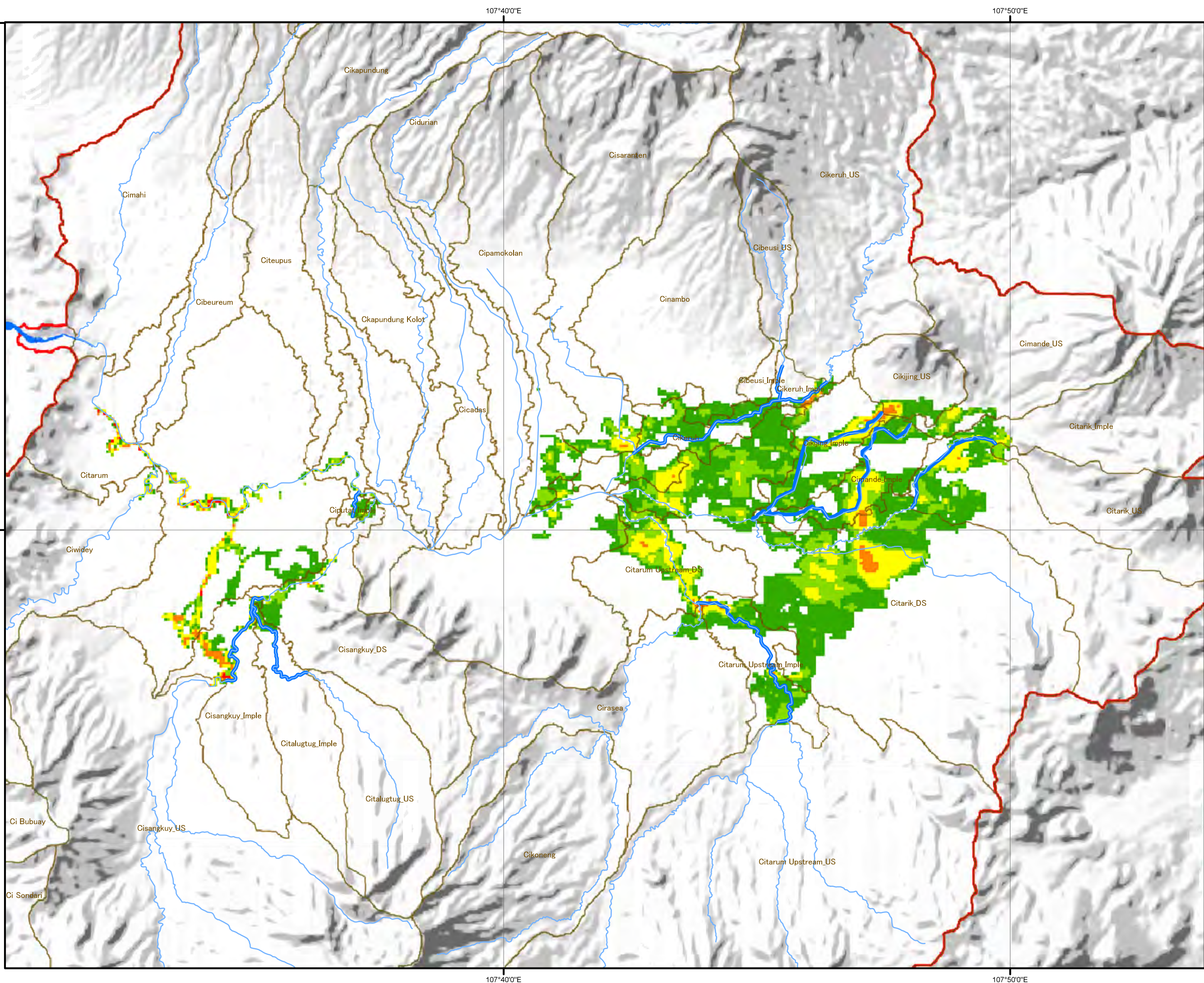


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-EX_20YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

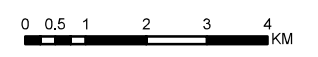
**The Preparatory
Survey for Citarum
Upper Basin
Tributaries Flood
Management Project**



**ASBUILD EXISTING
(50 years)**



1:125,000



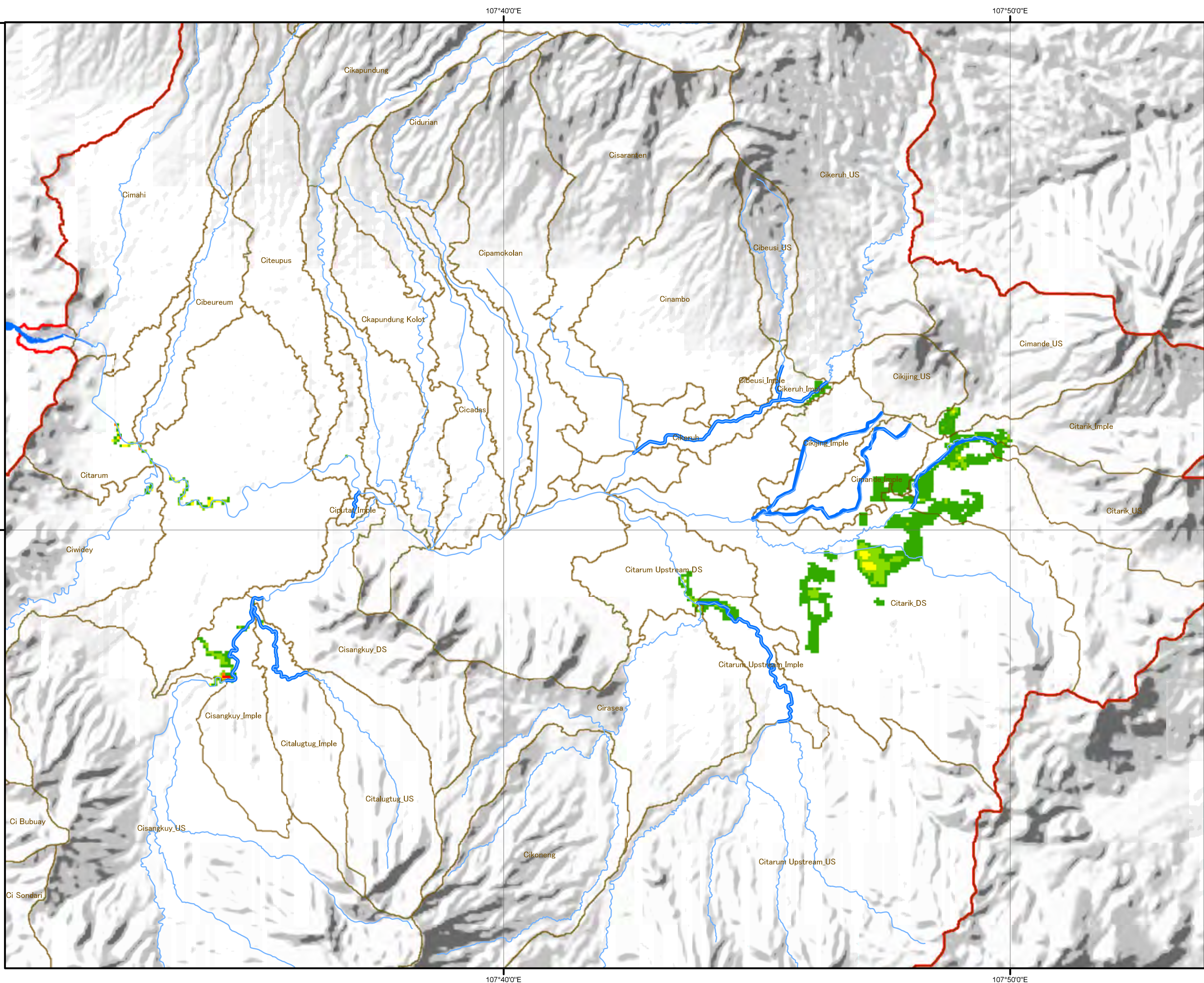
Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-EX_50YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

**The Preparatory
Survey for Citarum
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Tributaries Flood
Management Project**

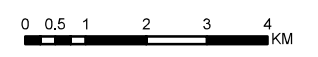
2) With Project



**ASBUILD MODIFIEDDD
EXISTING(2 years)**



1:125,000

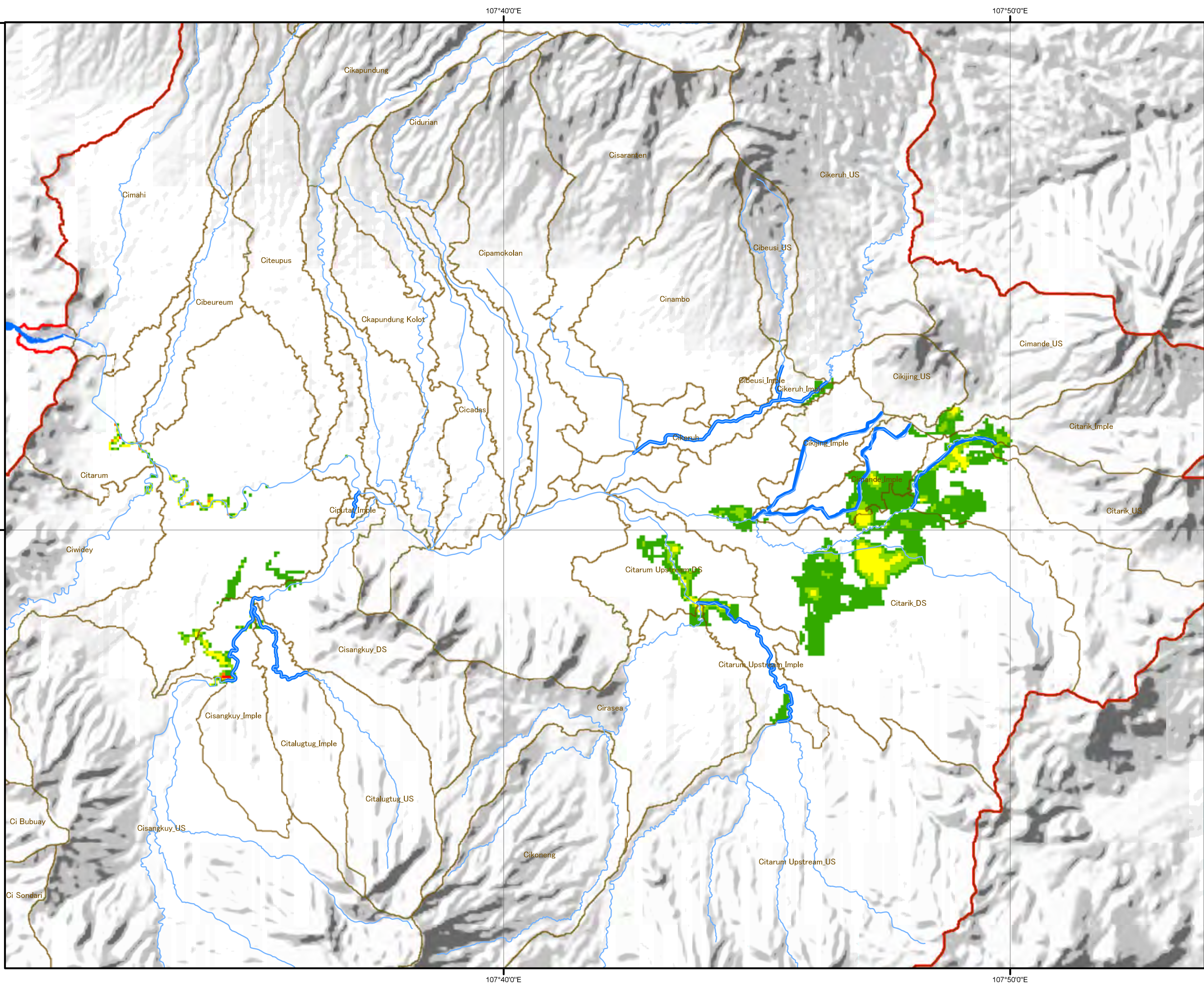


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-MDD-EX_2YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

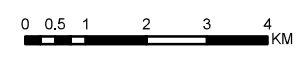
**The Preparatory
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Tributaries Flood
Management Project**



**ASBUILD MODIFIEDDD
EXISTING(5 years)**



1:125,000

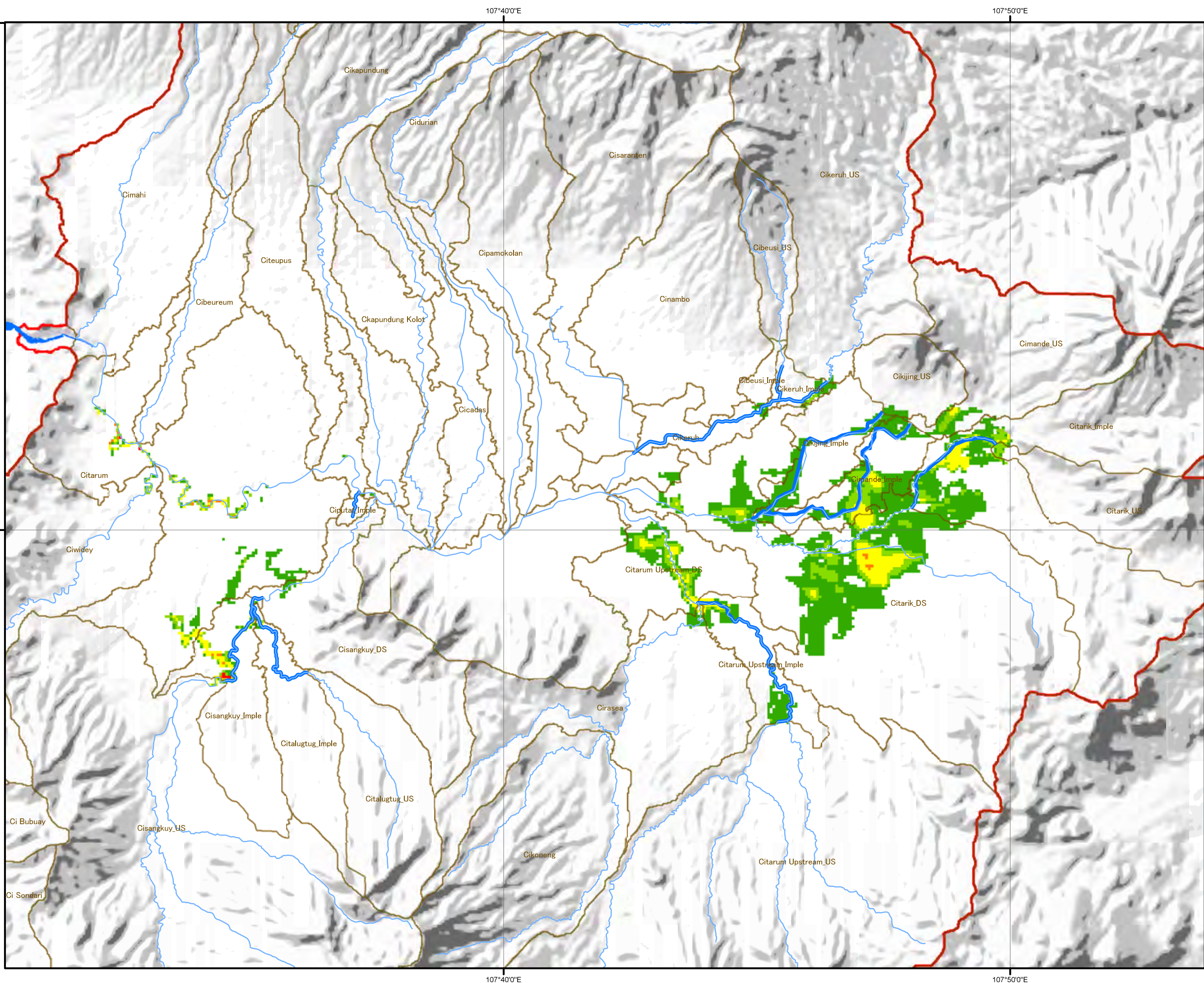


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-MDD-EX_5YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

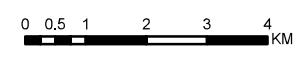
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**ASBUILD MODIFIEDDD
EXISTING(10 years)**



1:125,000

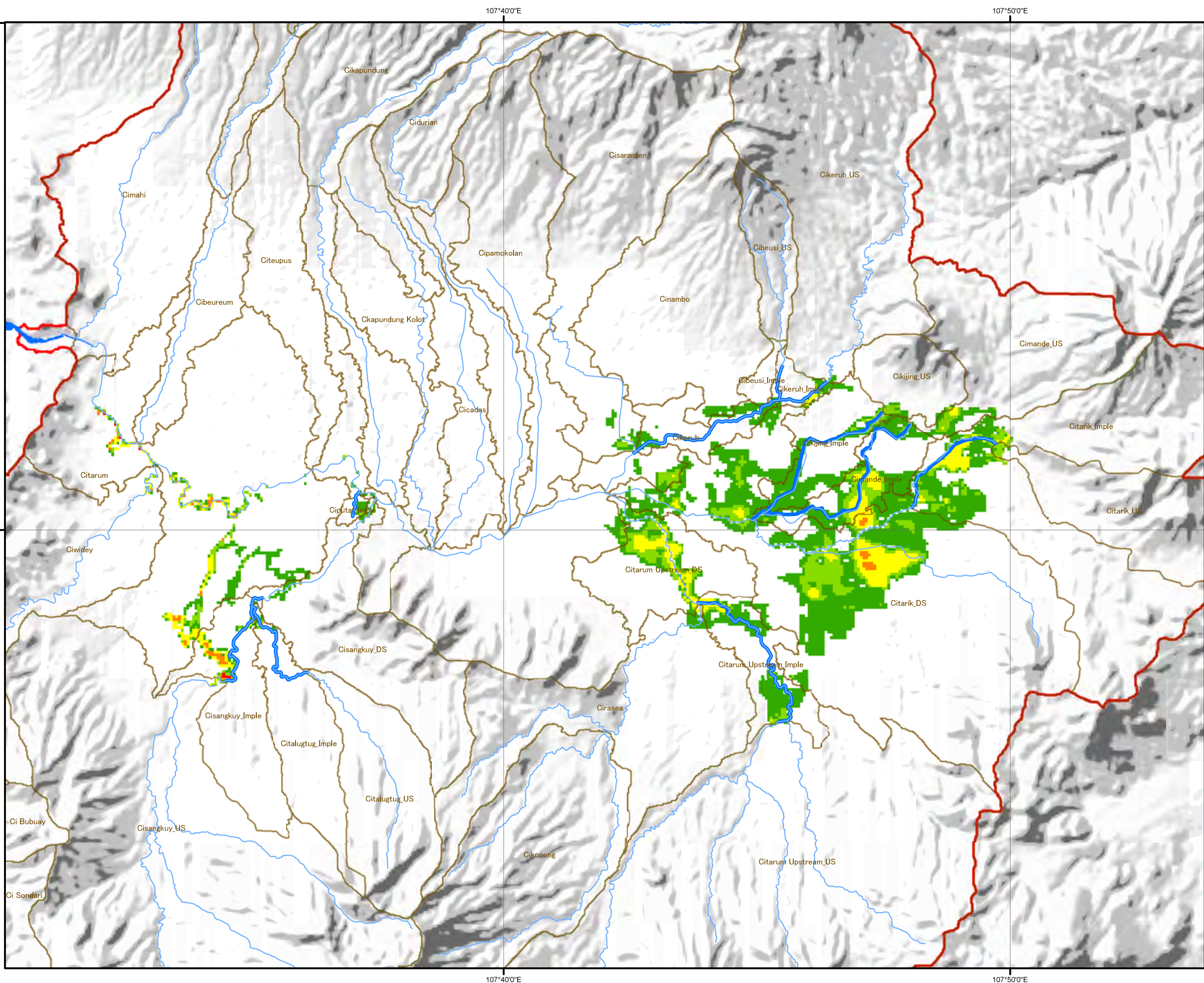


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-MDD-EX_10YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

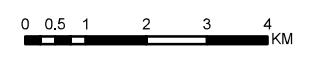
**The Preparatory
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**ASBUILD MODIFIEDDD
EXISTING(20 years)**



1:125,000

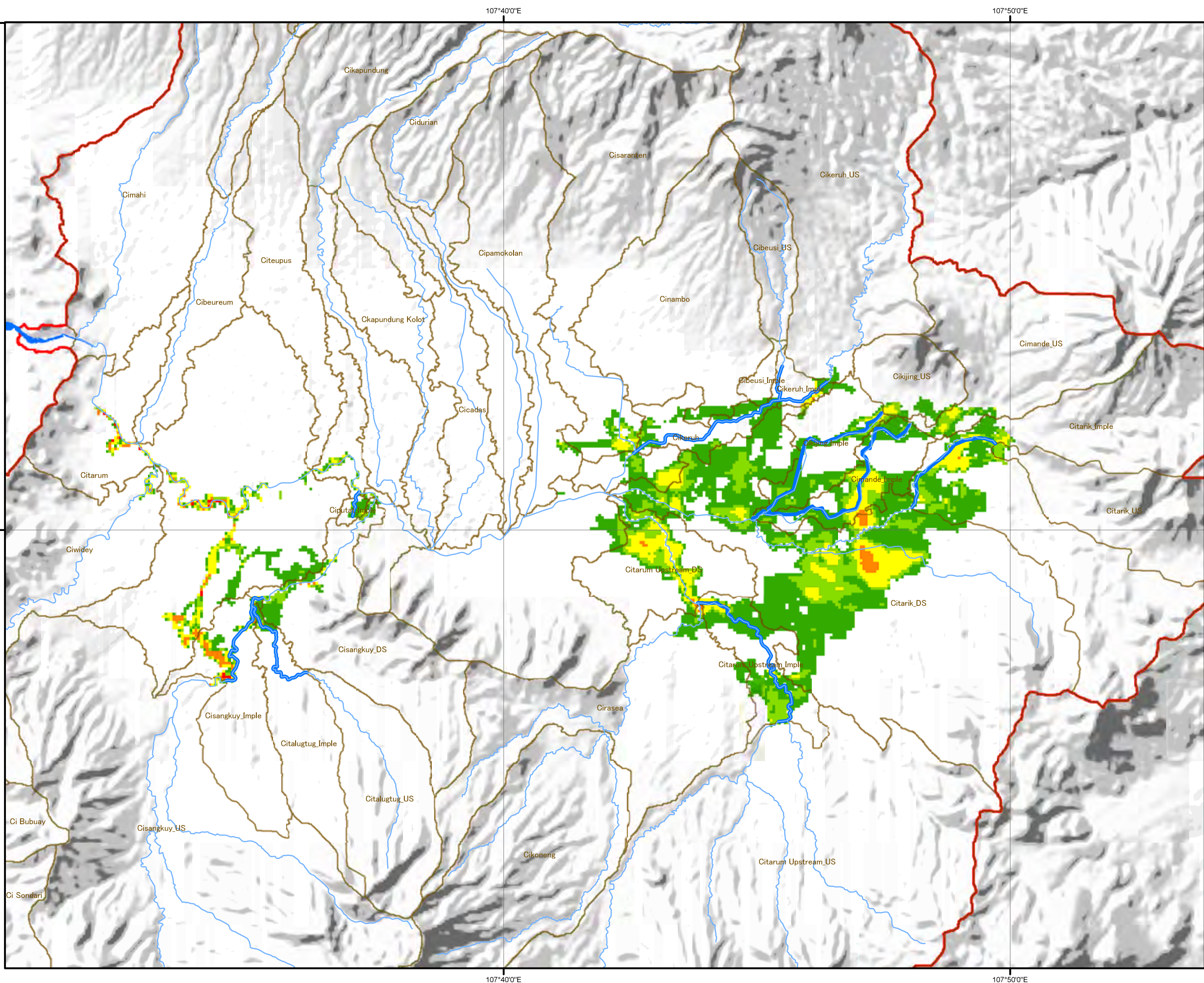


Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-MDD-EX_20YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

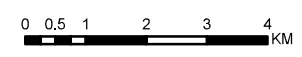
**The Preparatory
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**ASBUILD MODIFIEDDD
EXISTING(50 years)**



1:125,000



Legend

- upper ctr river modify 2
- Stage III(Proposed)
- Upper Citarum Basin Area
- SubWatershed
- FLOOD(ASB-MDD-EX_50YR)**
- 0.00~0.49m
- 0.50~0.99m
- 1.00m~1.99m
- 2.00~2.99m
- 3.00m~

Source :

**The Preparatory
Survey for Citarum
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Tributaries Flood
Management Project**