UNIVERSITAS TRISAKTI

Ramadhani Yanidar <ramadhani@trisakti.ac.id>

Fwd: Review results of your manuscript (20M-07-445, ASTESJ)

1 message

djokomh@eng.ui.ac.id <djokomh@eng.ui.ac.id> Mon, Jul 27, 2020 at 11:29 AM
To: Ramadhani Yanidar <ramadhani@trisakti.ac.id>

-------- Original Message --------

Subject: Review results of your manuscript (20M-07-445, ASTESJ)
Date: 2020-07-27 00:08
From: ASTESJ <no-reply@manuscriptlink.com>
To: djokomh@eng.ui.ac.id

Dear Prof. Djoko Mulyo Hartono,

We have completed our review process for the following manuscript submitted to *Advances in Science, Technology and Engineering Systems Journal*.

Manuscript ID: 20M-07-445
Title: Water Availability for a Self-Sufficient Water Supply: A Case Study of the Pesanggrahan River, DKI Jakarta, Indonesia
Author(s): Ramadhani Yanidar, Djoko Mulyo Hartono, Setyo Sarwanto Moersidik
Corresponding Author: Djoko Mulyo Hartono
Affiliation of Corresponding Author: University of Indonesia
Date of Manuscript Submission: 06-Jul-2020 (UTC)

Overall review result: Major Revision Required

The second half of this email contains important review comments and you can also find them in the following online system.

* Online System URL: https://www.manuscriptlink.com/journals/astesj

Assuming you address the reviewers' concerns in a satisfactory manner, you can revise the original manuscript and again submit it to the above online system.

When preparing it, you should write the reply letter including a list of responses to the review comments. The reply letter to the review comments should be uploaded as a separate file in addition to your revised manuscript. Acceptable formats for the reply letter include PDF (preferred) and MS Word.

The deadline for submission of the revised manuscript and replay letter is 09-Aug-2020. If you have any question regarding the revised manuscript, please contact the journal editor-in-chief.

Thank you for submitting your manuscript to *Advances in Science, Technology and Engineering Systems Journal*.

Review Results

- Comments of Editor-in-Chief-
The paper requires significant editing. Please make your contribution and the novelty of your work very clear to readers. The final decision regarding the publication will be based on your revised manuscript.

- Reviewer Review Scores and Comments -
Reviewer #1

Overall Judgement: Accept subject to revisions, as noted in comments

The paper is suitable for ASTESJ. It is written well, however, before publication the following points should be addressed:
1. The Abstract is too long. It can be shortened.
2. The quality of Figure 1 should be improved.
3. The authors should correct all typo errors like m3, S0, etc.
4. All mathematical equations should be written with proper tools and need to be checked for proper symbols.
5. The description of Figures 11 and 12 are missing in the manuscript.
6. The inclusion of the water supply and demand model can be interesting.

Reviewer #2

Overall Judgement: Accept subject to revisions, as noted in comments

Apart from availability, also check water quality to know where it can be useful.
Improve on your abstract to reveal cogent findings and follow ASTESJ guidelines properly. Work on your results to enhance your contribution to knowledge. Let your manuscript be in clear and concise English. Proofs read and remove all grammatical errors. All tables must be discussed and put properly.

Reviewer #3

Overall Judgement: Major Revision Required

Authors reported the suitability of using the Pesanggrahan River, DKI Jakarta, Indonesia as a raw drinking water source and hence a system dynamics model has been developed to study the water supply and water demands for citizens. My specific comments are as follows:
1. The Abstract needed to be significantly enhanced. Authors may add more experimental results to the main text and highlight the significance of work instead of mentioning its limitations;
2. The introduction needed to be restructured.
3. Section 2 should be focused on the methodology. Many explanations may probably need to be reduced or moved to the introduction section, leaving only the methods used in the study (like collecting data, software needed for the development and so on);
4. Why do authors need to add Tables 1 and 2? Since the constant values belong to Ref. 7, then i recommend removing Tables 1 and 2 from the entire text, leaving only the constant values that were used for calculations. Ref. 7 can be mention at the end of the paragraph;
5. Figures 2 and 3: there is no need to add the actual data (numbers below the graphs) since it is already presented in the graph (Y-axis). Please revise.
6. Figure 3 was mentioned in the main text. However, an explanation of Figure 3 should also be provided;
7. Figure 6 is irregular. All numbers which represent monthly 90% dependable precipitation and flow fluctuation at each month should be deleted.
8. Figures 12 and 13 are duplicated, isn't it? If so, please delete the duplicated ones and double-check that tables are properly mentioned in the main text;
9. conclusions needed to be rewritten. Authors may probably move the last two paragraphs that explained before the conclusion section (i. e. "The simulation model proves that self-sufficient water supply in the region will require increased awareness of the water scarcity crisis..." and "The verification results of the model structure, the mathematical equations, and the interrelationships between the subsystems accurately..." into the conclusion section since the explanation is almost related to the conclusion and recommendations;
10. Some important indicators of river pollution like BOD, COD and NO3 would help improve the quality of the manuscript;

Other minor issues:
• CLD should be defined as the first time seen;
• Authors say: "Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure 10." Figure 10 should be 'Figure11'. Please revise;
• The Y-axis factor and unit of Figure 12 should be provided;
• Section '3.3.2' should be changed to '3.4';
• Authors say "Figure 10 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply..". Please change to 'Figure 13' and re-listed all Figures accordingly;
• Bibliographic support: there is some missing information (i. e. journal name, publisher, volume and page numbers). Please revise;

Reviewer #4

Overall Judgement: Accept with minor changes

(1) Figure 6 should be referred in the text before Figure 6, and should not be referred in the text after Figure 6.
(2) Figure 11 is not referred in the text.
(3) Figure 12 is not referred in the text.

Reviewer #5

Overall Judgement: Accept subject to revisions, as noted in comments

The authors did a good job in analyzing the potential water quantity that can be provided by Pesanggrahan River. Major factors are considered in their formulas, such as rainfall-runoff, land covers, sub-watershed, etc.

Major comments:
- The authors did not provide concrete text on the current status of the water demands in DKI. They briefly mentioned that the local water resources only fulfill 5.7% of the demand, but they did not provide the reference/source of this number. More details can be added, for example, the quantity and health status of inhabitants in this area, all of the current water sources, fluctuations, etc. This way, the readers can be aware of the severity of water shortage in DKI.

- Making a good tradeoff between quantity and quality. The authors mentioned that quality is not in the scope of this paper. Actually, it's a very important factor when considering the feasibility of extracting water from the river. The reviewer thinks it should be easy to get some initial readings of the quality. We can just take some samples at multiple locations of the river, so we can estimate the cost of purifying them.

- The price-based policy may not work in different scenarios. For example, will the water supply be driven by the government or a private company? For a public project, it might not be appropriate to adjust water price sharply because low income inhabitants may not be able to access clean water at a high cost.

Minor comments:
- Section 2.2, the explanation of variables in formula (2) can use "formula" format too, so subscripts and Sigma symbols can be displayed nicely.

Reviewer #6

Overall Judgement: Reject in current form, but may be resubmitted

The paper addresses a subject of interest and present original results.

The paper could be improved in the following section:
1. Introduction: more information about other systems/models used in the world need to be added in order to clarify what is the original contribution of the paper compared with those.
2. Materials and methods: a clear presentation of the methodology (steps) used will be helpful for the readers. This could be added at the beginning of this section.
3. Result and Discussion: equation describing the relationship between Service coverage and Average water consumption (pp. 6) is not a linear equation. The dependency is described by a power function.
Please complete both regression models with the values of the F-test and interpretation.

Other comments:
1. In the paper are used different notation for the same parameter (e.g. for seconds are used s, sec, and seconds). Please use for measurement units only one notation (the one from the international system).
2. Please add the measurement unit of the variables in Table 3.
3. Figure 5 - please add the name of the variable and measurement units for each of the axes.
4. Equations from sections 3.1 and 3.3. 2 need to be edited in the form required in the Instruction for the Authors.
5. Use only the "point" separator for the decimals (e.g. in table 2 are used both "point" and "comma" as a separator).
6. Figure 6 - please translate in English the measurement units presented in the graph legend (e.g. bulan, detik)

Prof. Passerini Kazmerski, Editor
Advances in Science, Technology and Engineering Systems Journal
Email: editor@astesj.com
Homepage: http://www.astesj.com

==========[Note]==========

This email is only for the delivery service.
Please do not reply to this mail.

August 8, 2020

Re: Resubmission of the manuscript *Water Availability for a Self-Sufficient Water Supply: A CaseStudy of the Pesanggrahan River, DKI Jakarta, Indonesia*, ID: 20M-07-445

The Editor-in-Chief
Advances in Science, Technology and Engineering Systems Journal

Dear Prof. Passerini Kazmerski,

Thank you for the opportunity to revise a draft of the manuscript "*Water Availability for a Self-Sufficient Water Supply: A Case Study of the Pesanggrahan River, DKI Jakarta, Indonesia"* for publication in *the Advances in Science, Technology and Engineering Systems Journal*.

We appreciate the time and efforts of the editor and reviewers for their thorough reading to providing feedback on our manuscript and the insightful comments on valuable improvements to our paper. In revising the paper, we have tried to do our best and carefully considered most of the suggestions made by the reviewers.

Following this letter are the editor and reviewer comments with a point-by-point response to the reviewers' comments and concerns in italics. They included how and where the text was modified.

After addressing the issues raised, we believe that the manuscript substantially improved after making the suggested edits, and we hope you agree.

Sincerely,

Prof. Dr. Djoko Mulyo Hartono,

Civil Department, Faculty of Engineering, University of Indonesia,

Depok, 16242, Indonesia.

Editor-in-Chief

Q_E.1. The paper requires significant editing. Please make your contribution and the novelty of your work very clear to readers. The final decision regarding the publication will be based on your revised manuscript. (26-Jul-2020)

A_E.1 *Thank you for pointing this out. We have revised the abstract and introduction section to better reflected the contribution and the novelty of our work.*

Reviewer #1

The paper is suitable for ASTESJ. It is written well, however, before publication, the following points should be addressed.

We thank you for the comments and suggestions that helped us to improve the manuscript. As indicated below, we have tried to do our best to respond to all the points raised

Q1.1. The abstract is too long. It can be shortened

A1.1. *As suggested by the reviewer, the abstract has been rewritten (217 words). We condensed the discussion and removed the limitation as suggested by reviewer #1 added to reveal cogent findings as suggested by reviewer #2 and more simulation results to the main text and highlight the significance of work, taking into account Reviewer #3.*

This research will explore the challenges of using local water sources inside the city for a self-sufficient urban water supply by developed a system dynamics model. This study aims to evaluate and understand the Pesanggrahan River appropriateness as a raw drinking water source through a conceptual model that can accurately represent the interactions between the water supply and demand system. A set of time series data for the monthly precipitation and river flow rates at two stations from 2002 to 2016 were used to calculate the 90% dependable river flow fluctuations over one year. The results showed that water availability becomes limited in July, August, and September. Simulation results demonstrated that the Pesanggrahan River could supply 450 liters/s. The water demand exceeded the supply if the average water consumption 150 liters/capita/day for 100% service coverage. However, they will balance when service coverage 66 %, and reducing water consumption to 99 liters/capita/day will increase service coverage to 100%, with the average water consumption forming a linear equation relationship $Y = 99.20x-0.99$ with a correlation factor $R^2 = 0.99$. This research contributes to enhancing the resilience of the water supply system. It provides a well-founded, flexible, and realistic approach to recognize and deal with challenges to local raw water resources limitation that inherent with uncertainties in water resources management.

Q1.2. The quality of Figure 1 should be improved

A1.2. *We have improved the figure 1. The revision is added on page 2, right Column*

Q1.3. The authors should correct all typo errors like m3, S0, etc.

A1.3. *The correction has been made.*

Q1.4. All mathematical equations should be written with proper tools and need to be checked for proper symbols

A1.4. *The correction has been made. We have changed equation (2) according to your comment. The revision is added on page 2, right column, line 11. as* shown :

$$Q = \frac{\sum_{i=0}^{n} C_i x A_i}{\sum_{i=0}^{n} A_i} \; x \; R \; x \; \sum_{i=0}^{n} Ai_i$$

Q1.5. The description of Figures 11 and 12 are missing in the manuscript

A1.5. *We have corrected and re-listed all figures numbers in the text of the manuscript. The revisions are:*

a. *Figure 8 changed to figure 10 in section 3.3 page 5, left column, line 6.*
   "The situation analysis provided by the CLD structure of the system dynamics model described the appropriateness of the Pesanggrahan River as a raw water source (see Figure ~~8~~ 10)."

b. *Figure 10 changed to figure 11 in section 3.3 page 5, left column, line 15*
   "Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure ~~10~~ 11."

c. *Figure 11 changed to figure 12 in section 3.4 page 6, left column, line 15*
   "Figure ~~10~~ 12 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply if the average water consumption was 150 liters/capita/day."

Q1.6. The inclusion of the water supply and demand model can be interesting.

A16 *Thank You, we concur.*

Reviewer #2

Accept subject to revisions, as noted in comments

We thank you for the comments and suggestions that helped us to improve the manuscript. As indicated below, we have tried to do our best to respond to all the points raised

Q2.1. Apart from availability, also check water quality to know where it can be useful.

A2. 1. *We agree with the reviewers, in which water quality is apart from availability. We have checked the water quality already. In the introduction, we cited our previous paper (ref.4), which concluded that the Pesanggrahan River is adequate for use as a raw drinking water source.* ***(****page 1, right column, paragraph 3)*

Pesanggrahan River is one of the raw water sources inside the DKI Jakarta area. Due to its water quality, it is adequate for use as a raw drinking water source [11]. However, it is necessary to prove that the quantity of its supply is sufficient for decentralized raw water services accommodating the inhabitants of the sub-basin of the Pesanggrahan River in the DKI Jakarta subregion.

Q2.2. Improve on your abstract to reveal cogent findings and follow ASTESJ guidelines properly.

A2.2 *As suggested by the reviewer, the abstract has been rewritten. We condensed the discussion and removed the limitation as suggested by reviewer #1, added to reveal cogent findings as suggested by reviewer #2 and more simulation results and highlight the significance of work, taking into account Reviewer #3 to the main text.*

The revised abstract has followed ASTESJ guidelines.

Q2.3. Work on your results to enhance your contribution to knowledge.

A2.3. *As suggested by the reviewer****,*** *the contribution has been written on page 7, section 4, paragraph 2*

Q2.4. & 5 Let your manuscript be in clear and concise English. Proofs read and remove all grammatical errors

A2.4.& 5. *The manuscript has been proofread by a company that states, "the first online editing and proofreading company to receive ISO 9001:2008 certification and ISO 9001:2015 in 2017 to ensure our system remains top-of-the-line". Would you please point out an example of a grammatical error; accordingly, we can ask them to correct their work for a second time.*

Reviewer #3

Accept subject to revisions, as noted in comments. Major Revision Required

Authors reported the suitability of using the Pesanggrahan River, DKI Jakarta, Indonesia as a raw drinking water source and hence a system dynamics model has been developed to study the water supply and water demands for citizens**.**

We thank you for the comments and suggestions that helped us to improve the manuscript. As indicated below, we have tried to do our best to respond to all the points raised

Q3.1. The abstract needed to be significantly enhanced. Authors may add more experimental results to the main text and highlight the significance of work instead of mentioning its limitations

A3.1 *As suggested by the reviewers, the abstract has been rewritten. We condensed the discussion and removed the limitation as suggested by reviewer #1 added to reveal cogent findings as suggested by reviewer #2 and more simulation results to the main text and highlight the significance of work, taking into account Reviewer #3.*

Q3.2. The introduction needed to be restructured

A3.2 *As suggested by the reviewers, we have revised the introduction section to present some explanations which moved from the methodology section and better reflected the contribution and the novelty of our work.*

Q3.3 Section 2 should be focused on the methodology. Many explanations may probably need to be reduced or moved to the introduction section, leaving only the methods used in the study (like collecting data, software needed for the development and so on);

A3.3 *We have concisely elaborated on the methodology. Some explanations have reduced or moved to the introduction. However, we have added 2 paragraphs at the beginning of section 2 in order to present the step of methodology more clearly, as suggested by reviewer #6. (page 2).*

Q.3.4 Why do authors need to add Tables 1 and 2? Since the constant values belong to Ref. 7, then I recommend removing Tables 1 and 2 from the entire text, leaving only the constant values that were used for calculations. Ref. 7 can be mention at the end of the paragraph.

A3.4 *All of the constant values in tables 1 and 2, which specific for silty clay soil, were used for computing a geometric intersection when overlay multiple feature classes (land cover in figure 7 and slope surfaces in figure 8) using GIS calculation.*

We have removed tables 1 and 2 and mentioned that "the constant values belong to ***[17]"*** *at the end of the paragraph.*" ***(****page 2, right Colum, paragraph 4.)*

"where C is the potential runoff coefficient for a surface slope S (%), S_0 (%) is a slope constant for different land use and silty clay soil combinations, and C_0 is the coefficient of the potential runoff. S_0 and C_0 represent the values belong to [17]"

Q.3.5 Figures 2 and 3: there is no need to add the actual data (numbers below the graphs) since it is already presented in the graph (Y-axis). Please revise.

A3.5 They have already revised on *page 3*

Q.3.6. Section 3.1, alinea 2. Figure 3 was mentioned in the main text. However, an explanation of Figure 3 should also be provided

A3.6 They have already revised. Section 3.1 paragraph 2 is an explanation of figure 3, we added the text '(figure 3)' paragraph 2 on *page 3*

"Therefore, the river flow measurement at the Kebun Jeruk Station in the downstream was significantly higher than the measurement at the Sawangan Station, as the minimum flow was 1.65 m^3/s to 5.66 m^3/s, and the maximum flow was 26.7 m^3/s to 69.9 m^3/s The KRS was 12.34 to 16.2, which indicated good conditions for water availability [12]. Meanwhile, the dependable flow fluctuated from 6.18 m^3/sec to 9.79 m^3/sec." (figure 3).

Q3.7. Figure 6 is irregular. All numbers which represent monthly 90% dependable precipitation and flow fluctuation at each month should be deleted

A3.7 *They have already revised. All numbers which represent monthly 90% dependable precipitation and flow fluctuation at each month have been deleted.* (*page 4, .left Column)*

Q3.8. Figures 12 and 13 are duplicated, isn't it? If so, please delete the duplicated ones and double-check that tables are properly mentioned in the main text

A3.8 *No, Figures 12 and 13 are not duplicated. The line of water demand in figure 12 is drawn above the line of water supply (WD > WS), while in Figure 13 the two of them coincide to a line (WD≈WS). Figure 13 illustrates the simulation results of various water consumption scenarios that produce the total water demand equal to total supply, which refers to the water availability 450 m^3/s. We have added this information in this section.*

Figure ~~11~~ 12 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply if the average water consumption was 150 liters/capita/day. The simulation results of various water consumption scenarios that produce the total water demand equal to total supply, which refers to the water availability of 450 m^3/s can be seen in figure 13.

Q3.9. Conclusions needed to be rewritten. Authors may probably move the last two paragraphs that explained before the conclusion section (i. e. "The simulation model proves that self-sufficient water supply in the region will require increased awareness of the water scarcity crisis…" and "The verification results of the model structure, the mathematical equations, and the interrelationships between the subsystems accurately…" into the conclusion section since the explanation is almost related to the conclusion and recommendations

A3.9 *Thank you, the conclusion has been rewritten, taking into account the reviewer's recommendation* (page 6)

Q3.10. Some important indicators of river pollution like BOD, COD, and NO_3 would help improve the quality of the manuscript;

A3.10 We respect and agree with BOD, COD, and NO_3 are important indicators of river pollution. *We have checked the water quality already. In the introduction, we cited our previous paper (ref.4), which concluded that the Pesanggrahan River is adequate for use as a raw drinking water source.(page 1, right column, paragraph 3).*

*"**Pesanggrahan River is one of the raw water sources inside the DKI Jakarta area. Due to its water quality, it is adequate for use as a raw drinking water source [11]. However, it is necessary to prove that the quantity of its supply is sufficient for decentralized raw water services accommodating the inhabitants of the sub-basin of the Pesanggrahan River in the DKI Jakarta subregion.***

Other minor issues:

Q3m.1.CLD should be defined as the first time seen;

A3m.1 While we appreciate the reviewer's feedback, we respectfully disagree. We think CLD is a fundamental part of developing a system dynamics model, and for this reason, it should be located in the model development section.

Q3m.2. Authors say: "Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure 10." Figure 10 should be 'Figure11'. Please revise;

A3m.2 *Thank you, we have corrected and re-listed all figures numbers in the text of the manuscript. The revisions are :*

a) *Figure 8 changed to figure 10 in section 3.3 page 5, left column, line 6.*

*"**The situation analysis provided by the CLD structure of the system dynamics model described the appropriateness of the Pesanggrahan River as a raw water source (see Figure ~~8~~ 10)."***

b) *Figure 10 changed to figure 11 in section 3.3 page 5, left column, line 15*

"Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure ~~10~~ 11."

c) *Figure 11 changed to figure 12 in section 3.4 page 6, left column, line 15*

"Figure ~~10~~ 12 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply if the average water consumption was 150 liters/capita/day."

Q3m.3. The Y-axis factor and unit of Figure 12 should be provided;

A3m.3 *Thank you, The figure has been added Y-axis factor and unit.*

Q3m.4. Section '3.3.2' should be changed to '3.4'

A3m.4 *Thank you, we have changed the section '3.3.2' to '3.4'*

Q3m.5. Authors say "Figure 10 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply". Please change to 'Figure 13' and re-listed all Figures accordingly

A3m.5. *Thank you, we have corrected and re-listed all figures numbers in the text of the manuscript. The revisions are :*

a) *Figure 8 changed to figure 10 in section 3.3 page 5, left column, line 6.*
"The situation analysis provided by the CLD structure of the system dynamics model described the appropriateness of the Pesanggrahan River as a raw water source (see Figure ~~8~~ 10)."

b) *Figure 10 changed to figure 11 in section 3.3 page 5, left column, line 15*
"Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure ~~10~~ 11."

c) *Figure 11 changed to figure 12 in section 3.4 page 6, left column, line 15*
"Figure ~~10~~ 12 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply if the average water consumption was 150 liters/capita/day."

Q3m.6. Bibliographic support: there is some missing information (i. e. journal name, publisher, volume, and page numbers). Please revise;

A3m.6 *Thank you, we have corrected and revised the*

Reviewer #4

Accept with minor changes

We thank you for the comments and suggestions that helped us to improve the manuscript. As indicated below, we have tried to do our best to respond to all the points raised

Q4.1. The introduction needed to be restructured

A4.1 *As suggested by the reviewers, we have revised the introduction section to present some explanations which moved from the methodology section and better reflected the contribution and the novelty of our work.* ***(****page 2)*

Q4.2 and 3 Figure 11 and 12 is not referred to in the text.

A4.2and 3 *Thank you, we have corrected and re-listed all figures numbers in the text of the manuscript. The revisions are :*

a) *Figure 8 changed to figure 10 in section 3.3 page 5, left column, line 6.*
"The situation analysis provided by the CLD structure of the system dynamics model described the appropriateness of the Pesanggrahan River as a raw water source (see Figure ~~8~~ 10)."

b) *Figure 10 changed to figure 11 in section 3.3 page 5, left column, line 15*
"Based on the causal loop built above, an SFD was made for the water quantity availability model, as shown in Figure ~~10~~ 11."

c) *Figure 11 changed to figure 12 in section 3.4 page 6, left column, line 15*
"Figure ~~10~~ 12 shows that a constant supply of 450 liters/sec would result in water demand that exceeded the supply if the average water consumption was 150 liters/capita/day."

Reviewer #5

Accept subject to revisions, as noted in comments

The authors did a good job in analyzing the potential water quantity that can be provided by Pesanggrahan River. Major factors are considered in their formulas, such as rainfall-runoff, land covers, sub-watershed, etc.

Overall Judgement: Reviewer Comments to Author(s)

We thank you for the comments and suggestions that helped us to improve the manuscript. As indicated below, we have tried to do our best to respond to all the points raised

Major comments:

Q5.1 The authors did not provide concrete text on the current status of the water demands in DKI. They briefly mentioned that the local water resources only fulfill 5.7% of the demand, but they did not provide the reference/source of this number. More details can be added, for example, the quantity and health status of inhabitants in this area, all of the current water sources, fluctuations, etc. This way, the readers can be aware of the severity of water shortage in DKI.

A.5.1. *As suggested by the reviewers, we have revised the introduction (page 1)*

Q5.2 Making a good tradeoff between quantity and quality. The authors mentioned that quality is not in the scope of this paper. Actually, it's a very important factor when considering the feasibility of extracting water from the river. The reviewer thinks it should be easy to get some initial readings of the quality. We can just take some samples at multiple locations of the river, so we can estimate the cost of purifying them

A5.2 *We agree with the reviewer that water quality is an essential factor when considering the feasibility of extracting water from the river. We mentioned that quality is not in the scope of this paper because that the quality of Pesanggrahan river water has been discussed in our previous paper, and we have mentioned in first draft manuscript : (page 1, right column, paragraph 3)*

Pesanggrahan River is one of the raw water sources inside the DKI Jakarta area. Due to its water quality, it is adequate for use as a raw drinking water source [11]. However, it is necessary to prove that the quantity of its supply is sufficient for decentralized raw water services accommodating the inhabitants of the sub-basin of the Pesanggrahan River in the DKI Jakarta subregion

Q5.3 The price-based policy may not work in different scenarios. For example, will the water supply be driven by the government or a private company? For a public project, it might not be appropriate to adjust water prices sharply because low-income inhabitants may not be able to access clean water at a high cost.

A5.3 *Thank you for pointing this out. It would have been interesting to explore this aspect. However, water supply services in Jakarta provide a progressive tariff structure that is divided into several household classes. The classes based on the condition of the house,*

which is assumed to represent the income level. Progressive tariffs provide an opportunity to get cheap water prices as long as the volume of water consumption still in accordance with basic needs. The rest will be expensive.

Minor comments:

Q5m.1 Section 2.2, the explanation of variables in formula (2) can use "formula" format too, so subscripts and Sigma symbols can be displayed nicely.

A5m.1 *The correction has been made. We have changed equation (2) according to your comment. The revision is added on page 2, right column, line 11 as* shown :

$$Q = \frac{\sum_{i=0}^{n} C_i x A_i}{\sum_{i=0}^{n} A_i} \; x \; R \; x \; \sum_{i=0}^{n} Ai_i$$

Reviewer #6

Overall Judgement: Reject in current form, but may be resubmitted

The paper addresses a subject of interest and present original results.

Q6.1 introduction: more information about other systems/models used in the world need to be added in order to clarify what is the original contribution of the paper compared with those.

A6.1

Q6.2 Materials and methods: a clear presentation of the methodology (steps) used will be helpful for the readers. This could be added at the beginning of this section

A6.2 *Thank you for pointing this out. We have added 2 paragraphs at the beginning of section 2 (page 2, left Column, paragraph 4 and 5.). We hope* the improvement could present the step of methodology more clearly

" This study developed a water availability model for a self-sufficient water supply using system dynamics. The water quantity variable was based on a local hydrology data analysis of natural water flow from the upstream area. The simulation focused on the causal interaction between the water availability during one-year fluctuations based on dependable river flow and potential runoff with the water demand.

Concerning [8,9,10,11], this study employed the main variables related to hydrology analysis—namely, monthly rainfall, monthly river discharge, basin area, sub-basin land cover, and rainfall-runoff. Furthermore, the alternative sources of additional raw water included reused collected rainfall, which varied with the seasons."

Q6.3 Result and Discussion: equation describing the relationship between Service coverage and Average water consumption (pp. 6) is not a linear equation. The dependency is described by a power function. Please complete both regression models with the values of the F-test and interpretation

A6.3 *While we appreciate the reviewer's feedback, we respectfully disagree***,** equation describing the relationship between Service coverage and Average water consumption (pp. 6) is not a linear equation. The dependency is described by a power function.

In systems operating with multiple feedback loops, the system's states continuously determine the path in which the system will change. Almost all multi-loop systems are non-linear. That is, the cause-effect relations between variables are not linearly proportional. An effect observed at a specific range of its cause (and of other variables) may not be valid in another range of the same variables

Other comments

Q6m.1 In the paper are used different notation for the same parameter (e.g. for seconds are used s, sec, and seconds). Please use for measurement units only one notation (the one from the international system).

A6m.1 *Thank you. We have revised all typo errors and the notation concisely as sugessted*

Q6m.2 Please add the measurement unit of the variables in Table

A6m.2 *Thank you. We have revised all typo errors and the notation concisely as as sugessted*

Q6m.3 Figure 5 - please add the name of the variable and measurement units for each of the axes.

A6m.3 *Thank you. We have added the name of the variable and measurement units for each of the axes in figure 5*

Q6m.4 Equations from sections 3.1 and 3.3. 2 need to be edited in the form required in the Instruction for the Authors

A6m.4 *There are not equations in sections 3.1 and 3.2., but we have changed equation (2) according to your comment. The revision is added on page 2, right column, line 11 as* shown :

$$Q = \frac{\sum_{i=0}^{n} C_i x A_i}{\sum_{i=0}^{n} A_i} \; x \; R \; x \; \sum_{i=0}^{n} Ai_i$$

Q6m.5 Use only the "point" separator for the decimals (e.g. in **table 2** are used both "point" and "comma" as a separator

A6m.5 *Thank you. We deleted table 2 as suggested by reviewer 3#.*

Q6m.6 Figure 6 - please translate in English the measurement units presented in the graph legend (e.g. bulan, detik)

A6m.6 *Thank you. We have translated the measurement units presented in the graph legend concisely.*

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Fwd: [ASTESJ, 20M-07-445] Acknowledgment of a camera-ready paper submission

1 message

djokomh@eng.ui.ac.id <djokomh@eng.ui.ac.id> Thu, Sep 3, 2020 at 3:02 PM
To: Ramadhani Yanidar <ramadhani@trisakti.ac.id>

-------- Original Message --------

Subject:[ASTESJ, 20M-07-445] Acknowledgment of a camera-ready paper submission
Date:2020-09-02 12:59
From:ASTESJ <no-reply@manuscriptlink.com>
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Dear Prof. Djoko Mulyo Hartono,

Thank you for submitting the camera-ready version of the following manuscript accepted to the *Advances in Science, Technology and Engineering Systems Journal*.

Track: Regular Paper
Division: EEV. Engineering, Environmental
Manuscript ID: 20M-07-445
Title: Water Availability for a Self-Sufficient Water Supply: A Case Study of the Pesanggrahan River, DKI Jakarta, Indonesia
Author(s): Ramadhani Yanidar, Djoko Mulyo Hartono, Setyo Sarwanto Moersidik
Corresponding Author: Djoko Mulyo Hartono
Affiliation of Corresponding Author: University of Indonesia
Date of Manuscript Submission: 09-Aug-2020 (UTC)
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