

## Supplementary

**Table S1.** Site description of the study sites

| Study Site      | Location  | Area (km <sup>2</sup> ) | Population | Density (Population/km <sup>2</sup> ) | No. of Barangay |
|-----------------|---|-------------------------|------------|---------------------------------------|-----------------|
| Puerto Princesa | 9° 44' North, 118° 44' East<br>(9.7400, 118.7400)   | 2,381.02                | 307,079    | 129                                   | 66              |
| Roxas           | 10° 19' North, 119° 21' East<br>(10.3196, 119.3430) | 1,177.56                | 69,624     | 59                                    | 31              |
| Taytay          | 10° 50' North, 119° 31' East<br>(10.8256, 119.5166) | 1,257.68                | 83,357     | 66                                    | 31              |
| El Nido         | 11° 11' North, 119° 23' East<br>(11.1795, 119.3913) | 923.26                  | 50,494     | 55                                    | 18              |

**Table S2.** Summary information of the respondents

| Characteristics                      | Number | Percentage of total sample (%) |
|--------------------------------------|--------|--------------------------------|
| Gender                               |        |                                |
| Female                               | 10     | 31.25                          |
| Male                                 | 22     | 68.75                          |
| Employer Institution                 |        |                                |
| Academic and research institutions   | 12     | 37.5                           |
| Government agencies                  | 16     | 50                             |
| National civil society organizations | 2      | 6.25                           |
| Private sector                       | 2      | 6.25                           |

**Table S3.** Basic pair-wise comparison scale for AHP [61]

| Degree of importance | Definition                        | Description   |
|----------------------|-----------------------------------|---|
| 1                    | Equally important                 | Both are equally important                              |
| 3                    | Slightly important                | Slight importance of one attribute over the other       |
| 5                    | Important                         | Moderate importance of one attribute over the other     |
| 7                    | Very important                    | Strong importance of one attribute over the other       |
| 2, 4, 6              | Middle values of the above scales | Degree of importance is middle between the above scales |

**Table S4.** Values of the Random Index (RI) for small problems [62, 63]

| m  | 2 | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
|----|---|------|------|------|------|------|------|------|------|
| RI | 0 | 0.58 | 0.90 | 1.12 | 1.24 | 1.32 | 1.41 | 1.45 | 1.51 |

## Questionnaire S1: Sample questionnaire

*Project Title: Strategic Implementation of Integrated Water Resource Management in Selected Areas of Palawan: SWOT-AHP Method*

Pares na paghahambing ng SWOT Factors ng pagpapatupad ng IWRM.

*Pairwise comparison of the SWOT Factors of IWRM implementation.*

Ihambing ang Kadahilanan A sa Kadahilanan B at lagyan ng *check* (✓) ang isang naaangkop na numero.

*Compare the Factor A to Factor B and please check (✓) one appropriate number.*

| Factor A  | Very important |   | Important |   | Slightly Important |   | Equally | Slightly Important |   | Important |   | Very important |    | Factor B  |
|---|----------------|---|-----------|---|--------------------|---|---------|--------------------|---|-----------|---|----------------|----|---|
| Strengths   |                |   |           |   |                    |   |         |                    |   |           |   |                |    |   |
| Updated local water policy and water management strategies    | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Presence of framework for national IWRM plans                 |
| Updated local water policy and water management strategies    | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Enhanced institutional relationship for IWRM implementation   |
| Updated local water policy and water management strategies    | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Implementation of sustainable and efficient water consumption |
| Updated local water policy and water management strategies    | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | National investment budget sufficiency                        |
| Presence of framework for national IWRM plans                 | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Enhanced institutional relationship for IWRM implementation   |
| Presence of framework for national IWRM plans                 | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Implementation of sustainable and efficient water consumption |
| Presence of framework for national IWRM plans                 | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | National investment budget sufficiency                        |
| Enhanced institutional relationship for IWRM implementation   | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | Implementation of sustainable and efficient water consumption |
| Enhanced institutional relationship for IWRM implementation   | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | National investment budget sufficiency                        |
| Implementation of sustainable and efficient water consumption | ◀◀             | ▼ | ▲         | ▶ | ◀                  | ☐ | ☐       | ☐                  | ◀ | ▶         | ▲ | ▼              | ◀◀ | National investment budget sufficiency                        |

| Weaknesses  |    |   |   |   |   |   |   |   |   |   |   |   |    |   |
|---|----|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Low enforcement of legislated water related national policies and laws              | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Slow improvement on capability building and development                             |
| Low enforcement of legislated water related national policies and laws              | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Limited stakeholder participation   |
| Low enforcement of legislated water related national policies and laws              | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Absence of national monitoring for feasible water source                            |
| Low enforcement of legislated water related national policies and laws              | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Lack of civil society participation into water resource management                  |
| Lack of civil society participation into water resource management                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Slow improvement on capability building and development                             |
| Lack of civil society participation into water resource management                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Limited stakeholder participation   |
| Lack of civil society participation into water resource management                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Absence of national monitoring for feasible water source                            |
| Slow improvement on capability building and development                             | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Limited stakeholder participation   |
| Slow improvement on capability building and development                             | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Absence of national monitoring for feasible water source                            |
| Limited stakeholder participation   | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Absence of national monitoring for feasible water source                            |
| Opportunities   |    |   |   |   |   |   |   |   |   |   |   |   |    |   |
| Presence of huge watersheds areas and large number of river basins                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Growing partnership between governmental agencies, NGO's and developmental partners |
| Presence of huge watersheds areas and large number of river basins                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Existence of water infrastructure agency  |
| Presence of huge watersheds areas and large number of river basins                  | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Presence of water resources related studies   |
| Growing partnership between governmental agencies, NGO's and developmental partners | ◀◀ | ▼ | ▲ | ► | ◄ | 📄 | □ | 📄 | ◄ | ► | ▲ | ▼ | ◀◀ | Existence of water infrastructure agency  |

|   |    |   |   |   |   |   |   |   |   |   |   |   |    |   |
|---|----|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Growing partnership between governmental agencies, NGO's and developmental partners | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Presence of water resources related studies       |
| Existence of water infrastructure agency  | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Presence of water resources related studies       |
| <b>Threats</b>  |    |   |   |   |   |   |   |   |   |   |   |   |    |   |
| Increasing population pressure and industrialization                                | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Increasing negative impacts of climate change     |
| Increasing population pressure and industrialization                                | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Increasing water resources stress-inductors       |
| Increasing population pressure and industrialization                                | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Limited institutional manpower resources capacity |
| Increasing population pressure and industrialization                                | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Water pollution                                   |
| Increasing negative impacts of climate change                                       | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Increasing water resources stress-inductors       |
| Increasing negative impacts of climate change                                       | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Limited institutional manpower resources capacity |
| Increasing negative impacts of climate change                                       | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Water pollution                                   |
| Increasing water resources stress-inductors   | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Limited institutional manpower resources capacity |
| Increasing water resources stress-inductors   | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Water pollution                                   |
| Limited institutional manpower resources capacity                                   | ◀◀ | ▼ | ▲ | ▶ | ◀ | ◻ | ◻ | ◻ | ◀ | ▶ | ▲ | ▼ | ◀◀ | Water pollution                                   |

#### References:

- [60] L. Moutinho, G. Hutcheson, and M. J. Beynon, "Analytic Hierarchy Process," *The SAGE Dictionary of Quantitative Management Research*, pp. 9-12, 2014.
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- [62] S. Sindhu, V. Nehra, and S. Luthra, "Investigation of feasibility study of solar farms deployment using hybrid AHP-TOPSIS analysis: Case study of India," *Renewable and Sustainable Energy Reviews*, vol. 73, pp. 496-511, 2017.