

## ICIT Workshops with LIPI Researchers, 10-11 October 2016

These will be a series of short, facilitated workshops on the themes of marine energy and bio-resources, aimed at knowledge exchange and development of collaborative research networks related to sustainable development. The UN Sustainable Development Goals and sets of expected learning outcomes from the overall programme provide a framework for workshop aims (Appendix 2).

Workshops will be interactive, seeking active engagement of the LIPI researchers, with hands-on and practical activities where appropriate. The exact format will differ between workshops, but each will start with a brief introduction by the workshop facilitator(s), describing areas of research interest and setting the agenda, followed by a structured discussion of relevant issues addressing the following general questions for each topic:

- What need or opportunity is there for research activities in this area?
- How could research in this area contribute to sustainable development in Indonesia?
- How would research in this area integrate with existing programmes?
- What are the opportunities for collaborative funding bids?

### Monday 10 October

#### *Workshop 1. Marine energy resources*

Facilitators: Dr David Woolf, Dr Rob Harris

Key question: How do we model and measure wave and tidal energy resources and their extraction?

09:00-09:45 Visit to Ness Point to see the tidal channel of Hoy Sound

10:00-11:00 Interactive discussion, Warehouse Buildings, Stromness

11:00-11:15 Break

#### *Workshop 2. Marine spatial planning*

Facilitator: Dr Kate Johnson

Key questions: How do we balance the needs and impacts of multiple users of sea space, and what tools are available to do this?

11:15-12:30 Interactive discussion, Warehouse Buildings, Stromness

12:30-14:00 Lunch

#### *Workshop 3. Marine energy technology*

Facilitators: Mr Colin Bullen and Dr Rob Harris

Key question: What technology solutions are available to exploit marine energy resources?

14:00-15:45 Interactive discussion, Warehouse Buildings, Stromness

15:45-16:00 Break

#### *Summary and feedback for Tuesday*

Facilitators: Dr Sandy Kerr and Dr Mike Bell

16:00-17:00 Feedback from LIPI researchers on workshop outcomes, lessons for Tuesday workshops, Warehouse Buildings, Stromness

## **Tuesday 11 October**

### *Workshop 4. Ecological impact detection on rocky shores*

Facilitator: Mr Andrew Want

Key question: How can we detect responses to energy extraction and other stressors at community and species levels?

09:00-10:00 Visit to shore (Ness Battery) to view rocky shore communities and field techniques

10:00-11:00 Interactive discussion, Warehouse Buildings, Stromness

11:00-11:15 Break

### *Workshop 5. Seafood security*

Facilitator: Dr Angela Capper

Key questions: How do natural and anthropogenic contaminants affect seafood safety, and what are the socio-economic implications?

11:15-13:00 Interactive discussion, Warehouse Buildings, Stromness

13:00-14:00 Lunch

### *Workshop 6. Sustainable fisheries*

Facilitator: Dr Mike Bell

Key questions: What are the principles of fishery sustainability, and how can we apply them?

14:00-15:15 Interactive discussion, Warehouse Buildings, Stromness

15:15-15:45 Visit to lobster ponds at Stromness to view shellfish sampling and research activities

15:45-16:15 Break and prayer time

### *Workshop 7. Biosecurity*

Facilitators: Dr Joanne Porter and Mr Andrew Want

Key questions: How do non-native species impact upon biodiversity, how do they spread, and what actions are needed to avoid and mitigate any impacts?

16:15-17:00 Interactive discussion, Warehouse Buildings, Stromness

17:00-17:30 Visit to Stromness Marina to examine biofouling by non-native species

## Appendix 1. ICIT workshop facilitators



***Dr Sandy Kerr***

- Director of ICIT
- Energy economics and policy
- Sustainable marine and island development



***Dr Mike Bell***

- Marine ecology and modelling
- Sustainable fisheries and spatial fisheries modelling
- Environmental interactions of marine renewables



***Dr Angela Capper***

- Microplastics in the marine environment
- Marine contaminants and seafood security
- Harmful algal blooms



***Colin Bullen***

- Marine energy technology
- Marine engineering
- Health & Safety



***Dr Rob Harris***

- Marine structures
- Moorings and infrastructure
- Marine modelling and measurement



***Dr Kate Johnson***

- Marine planning
- Socio-economics and blue growth
- Maritime governance



***Dr Joanne Porter***

- Marine ecology and biodiversity
- Invertebrate taxonomy
- Scientific diving as a tool for underwater monitoring/experiments



***Andrew Want***

- Rocky shore ecology
- Ecological impact detection
- Seaweed



***Dr David Woolf***

- Marine earth observation
- Carbon and climate
- Marine renewable energy

## Appendix 2. Framework of learning outcomes for LIPI researchers

Items in *italics* are have been relatively less well-covered during the first week of the programme, thus would benefit from attention during ICIT workshop activities where appropriate.

### UN Sustainable Development Goals

1. *No Poverty*
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. *Gender Equality*
6. Clean Water and Sanitation
7. *Affordable and Clean Energy*
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. *Reduced Inequalities*
11. Sustainable Cities and Communities
12. *Responsible Consumption and Production*
13. *Climate Action*
14. Life Below Water
15. *Life on Land*
16. *Peace, Justice and Strong Institutions*
17. Partnerships for the Goals

### General learning outcomes

1. Understanding applied research methods
2. Understanding international drivers for multidisciplinary research
3. Perform comparative studies
4. Participating in discussions with researchers and industry practitioners
5. Creation of a network with international researchers
6. Management, commercialisation and sharing of information and research products
7. *First hand interviews and focus group discussions with end-users*
8. Understanding the steps required to bridge research and implementation
9. Exploring the steps required to set up business cases
10. Scaling up and commercialising research outputs
11. Multi stakeholder engagement
12. *Understanding donor requirements in funding research*
13. *Donor management*
14. *Project management*
15. Policy and technology interface
16. Having royalty and license of technology from research
17. *Spin-off, company start-ups, and investments*
18. Research projects socio-economic impact
19. Research project environmental impact

### Learning outcomes for curatorial group

1. Understanding current thinking, research methods, and research trends in the UK/Europe/Global markets related to curatorial practices
2. Participating in in-depth academic discussions with researchers in curatorial practices
3. *Hands-on lab experience in curatorial practices*
4. *Insights on public engagement strategies and awareness raising push and pull factors*

5. *Access to recent journal publications in curatorial practices area of research*
6. *Knowledge exchange in Botany*
7. *Knowledge exchange in Zoology*
8. *Knowledge exchange in Microbiology*
9. *Knowledge exchange in conservation*
10. *Knowledge exchange in sample and specimen handling*
11. *Knowledge exchange in preservation*
12. *Knowledge exchange in cataloguing*
13. *Knowledge exchange in exhibition and outreach programmes*
14. *Knowledge exchange in database and documentation*

**Learning outcomes for bioindustry-related bioresources group**

1. *Understanding current thinking, research methods and research trends in the UK/Europe/Global markets on bioindustry based bioresources*
2. *Participation in in-depth academic discussions with researchers in bioindustry based bioresources*
3. *Hands-on lab experience in bioindustry based bioresources*
4. *Access to recent journal publications in the bioindustry based bioresources area of research*
5. *Witness current biomaterial, bioenergy, waste water and water treatment technology in practice*
6. *Understanding the concepts of Eco-house and Eco-village*
7. *Insights on industrial sector for utilising bioindustry based bioresources*
8. *Knowledge exchange on Bioresources*
9. *Knowledge exchange on Biomaterials*
10. *Knowledge exchange on Bioenergies and other renewable energies*
11. *Knowledge exchange in ethical commercial exploitation of bioresources and biotechnologies*
12. *Knowledge exchange in industrial system of bioenergy and microalgal based product technologies*
13. *Knowledge exchange in sustainable energy and resources management*
14. *Knowledge exchange in bionanocomposites, including polymer composites for automotives and electronic devices*
15. *Knowledge exchange in lignocellulosic materials and termites*