



*Association for International Agricultural and  
Extension Education*

(31st Annual AIAEE Conference)

Joint Conference with:

**European Seminar on Extension Education**

(22<sup>nd</sup> Annual ESEE Conference)

**2015 Annual Conference - Wageningen, The Netherlands**

"Competence and Excellence in Extension and Education"

**April 27 - May 1, 2015**

## Conference Report

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Conference organized by Wageningen University and AIAEE, hosted by the  
chair group of Education and Competence Studies

[www.wageningenur.nl/ecs](http://www.wageningenur.nl/ecs)

Details of conference program and agenda are available at:

<https://aiaee.org/images/esee-aiaee-program.pdf>



## Introduction

First of all, I would like to thank AIAEE for giving me the opportunity to attend the Conferences. The conference was very interesting and gave the opportunity to learn many issues in regards to agricultural extension and education and its implications globally. As a PhD student of the National Pingtung University of Science and Technology, it was a very enriching experience for me to attend this conference and learn from international experts/fellows as well as renowned professors from various universities around the world. I will describe briefly below the different aspects discussed in the conference.

The main organizer of the conference was Association for International Agricultural and Extension Education (AIAEE), established in 1984, a professional organization for agricultural and extension educators who share a common goal of strengthening agricultural and extension education programs and institutions worldwide. As this was an AIAEE 31<sup>st</sup> annual conference, this conference is organized yearly basis, and this year, the conference was jointly organized with European Seminar and Extension Education (ESEE) in the Wageningen University, The Netherlands from April 27 to May 1, 2015. The conference's motto for this year is ***"Competence and Excellence in Extension and Education"***. The conference provided an opportunity to exchange ideas and experiences among university staff, private and professional personnel and others who are involved in agricultural extension and education field. This is also an excellent opportunity to look back at the development of competencies and their impact on Extension and Education.

By attending the conference, I was expecting to exchange thoughts about the development of our field and also to look forward towards the future. Whereas the input during the conference were predominantly given by researchers and academics, professionals from extension and education practice were equally also equally benefited.

From the April 27 to May 1, 2015, nearly 600 people came to the conference from more than 30 countries and presented their research work. The delegation consisted of people from amazingly varied backgrounds and from many different walks of life, including students, teachers, academics, researchers and scientists and there was a lot to be learned from the diversity of the people, cultures and countries represented.



## Objectives

The main objective of the conference was to provide an opportunity to exchange ideas and experiences among university staff, private and professional personnel and others who are involved in agricultural extension and education field. This is also an excellent opportunity to look back at the development of competencies and their impact on Agricultural Extension and Education. Also, the purpose of the conference was to share a common goal of strengthening agricultural and extension education programs and institutions worldwide.

## Conference Venue and Duration

Venue: The Forum Hall of Wageningen University Campus, The Netherlands.

Duration: April 27 to May 1, 2015

## Activities in the conference

Besides regular oral and poster presentation, there were many other activities conducted during the conference. For example, new member orientation and reception was organized on the 2nd day of conference in order to give some insight of the conference and organizations (eg. AIAEE, ESEE). Similarly, Partner, Spouse and Guest reception and their excursion to various places (Open Air Museum in Arnhem; De Grote Doorn in Slijk-Ewijk Country Store) in Holland was also conducted. Student meeting with advisors was the most important meeting especially with professors in extension field. PhD Candidates and Students Social Meeting was conducted in a local cultural restaurant and discussed issues about students' research and their outcomes. Additionally, at the last day of the conference, a field trip: Excursions (Optional: additional fee applies) Rotterdam World Transito Harbour, Kinderdijk, Water management.

## Topics addressed (Session Theme)

Session I: Sustainability of our Natural Resources and the Perceptions from our International Communities

Session II: Demonstrations of Farming Benefits and Debts with Extension Services

Session III: Empowering Through Agricultural Extension Outreach

Session IV: Training and Implementing Change in the Extension and Education Systems

Session IV: Gender, Diversity and Mentoring Training to Improve Extension Effectiveness



## *Association for International Agricultural and Extension Education* Scientific Organization Committee

- Prof. Dr. Martin Mulder (conference chair, chair group Education and Competence Studies)
- Associate Professor Dr. ir. Laurens Klerkx (chair group Knowledge, Technology and Innovation)
- Assistant Professor Dr. Renate Wesselink (chair group Education and Competence Studies)
- Dr. Eelke Wielinga (Owner Link Consult)

### Conference Organization Committee

- Prof. Dr. Pete Vergot III - Conference Chair Northwest District Extension Director, University of Florida
- Prof. Grady Roberts - Conference Co-Chair
- Global Education Lab: Agricultural Education & Communication, University of Florida
- Renee Pardello - Conference Co-Chair Assistant Dean, University of Minnesota Extension

### Keynote Speakers:

#### **1. Dr. Marianne Cerf (Assistant Director Research Department, INRA, France)**

Dr. Marianne (affiliated with INRA since 1987) delivered the speech about the activities of the French Chambers of Agriculture. She focused on farmers' decision-making and learning process and explained about how to develop action-research projects with advisory services, R&D as well as research organizations involved in innovation and design processes in agriculture. Her current research on intermediation activities, e.g. activities which aim at linking various practitioners, knowing and learning processes, tools, norms and rules, to facilitate change processes occurring between collective and public action. She is involved in a multi-stakeholder network in France dedicated to the design and assessment of innovative cropping systems which contribute to support policy makers regarding R&D activities related to issues of transition towards sustainability in France.



**2. Dr. Henrik Dethlefsen (Green Academy, Beder, Denmark; secretary-general of EUROPEA)**

Dr. Henrik Dethlefsen is the head of the International Project Department at the Green Academy in Aarhus, Denmark. He delivered the speech about his international experiences in project management, cooperation and networking, educational management and day-to-day school management. Further, with detailed knowledge on global farming, he has executed fact-finding missions, evaluations, projects and training courses, etc., in more than 35 countries. From 2011-2014 he was the scientific coordinator for the SOS-Network, an EU-funded thematic network aiming at reducing early school leaving and retaining special needs students in mainstream vocational education.

**Conference program:**

Details of conference program is attached in Appendix I at the end of this report.

**Poster Presentation Session:**

My poster presentation was scheduled on Wednesday, April 28 from 18:00 to 19:30 in the lobby of the Forum hall. I encountered many questions and suggestions during the poster presentation session. Some of the professors and researchers suggested me about how to improve research skills and scientific writing. I really learned something new and acquired knowledge in my research field by attending this international conference.

The poster that I presented at the Annual Conference of the *Association for International Agricultural and Extension Education (AIAEE)*, Wageningen, The Netherlands, 2015 is below:

## POSTER



### Factors affecting adoption of improved rice varieties and its impact on farm income: Evidence from Nepal

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#### Introduction/Need for Research

Current trend of agricultural productivity has seriously threatened the livelihood and food security of rural people in Nepal. The use of improved high yielding crop varieties remains an option to reduce hunger, poverty and food insecurity in developing world. Rice is, by far, the most important staple crop of Nepal cultivating under 35% of the total cultivated area, with the lowest productivity in South Asia. Farmers are still using traditional, low yielding varieties and haven't been able to realize the full yield potential and outputs. Therefore, there is an utmost need to examine the factors of low production and adoption of high yielding varieties by farming households.

#### Objectives

To determine the factors influencing adoption of improved rice varieties (IRVs) and their impacts on farm income among rural farm households in Central Nepal.

#### Research Methodology

A survey was conducted during 2013 crop season in Central Nepal. We used a multistage random sampling technique to select the sample. A total of 416 farm households were drawn randomly from eight villages of four districts namely Kavre, Nuwakot, Chitwan and Rautahat (Fig.1)



Figure 1. Map of Nepal showing study area (Source: MoAD, 2013)

We employed the Heckman sample selection model as specified below:

$$U_i = X_i'\gamma + u_i \quad \text{with } U_i = \begin{cases} 1 & \text{if a farmer adopts a new rice variety} \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

where  $U_i$  is a binary dependent variable,  $X_i'$  represents independent variables,  $\gamma$  denotes parameters to be estimated,  $u_i$  is the error term.

$$Y_i = \beta_0 + X_i'\beta_1 + U_i\beta_2 + \lambda_i\beta_3 + \mu_i \quad (2)$$

where  $Y_i$  is the log of annual farm income,  $X_i'$  represents household and farm characteristics,  $U_i$  is a dummy for IRV adoption,  $\lambda_i$  is mills ratio to correct selection bias,  $\mu_i$  is a random term.

#### Research Results

Summary statistics and estimated coefficients are presented in the Tables below:

Table 1. Descriptive statistics and variable specifications

| Variables       | Description                                                               | Mean (SD)     | Hypothesized effects |
|-----------------|---------------------------------------------------------------------------|---------------|----------------------|
| Age             | Age of household head in years                                            | 44.54 (10.81) | +                    |
| Gender          | =1 if the household head is male                                          | 0.71 (0.45)   | +                    |
| Education       | Years of formal education of the head                                     | 7.84 (3.37)   | +                    |
| Family labor    | Number of active family members                                           | 3.12 (0.98)   | +                    |
| Farm size       | Cultivated land area in the current year                                  | 0.66 (0.28)   | +                    |
| Land type       | =1 if household own irrigated landplot                                    | 0.51 (0.50)   | +                    |
| Bullocks        | =1 if household own bullocks                                              | 0.54 (0.49)   | +                    |
| Extension       | =1 if receives extension services                                         | 0.63 (0.47)   | +                    |
| Seed access     | =1 if seed is available at local store                                    | 0.45 (0.49)   | +                    |
| Distance        | Distance to nearest market (km)                                           | 12.59 (3.92)  | -                    |
| Road access     | =1 if farm is linked to the road                                          | 0.56 (0.49)   | +                    |
| Off-farm work   | =1 if participate in off-farm work                                        | 0.76 (0.42)   | +                    |
| Yield potential | =1 if the adopted variety to yield more than the local one                | 0.75 (0.42)   | +                    |
| Acceptability   | =1 if it is easier to sell grain from improved seed compared to local one | 0.51 (0.50)   | +                    |

Source: Author's survey (2013).

Table 2. Probit estimates of the adoption of improved rice varieties

| Variables       | Coefficients   | z-Value  | Marginal effects |
|-----------------|----------------|----------|------------------|
| Gender          | 0.052 (0.254)  | 0.20     | 0.006            |
| Age             | 0.163 (0.066)  | 2.43***  | 0.021            |
| Age squared     | -0.002 (0.001) | -2.40*** | -0.001           |
| Education       | 0.116 (0.045)  | 2.56***  | 0.014            |
| Family labor    | -0.257 (0.118) | -2.17**  | -0.032           |
| Farm size       | 1.525 (0.897)  | 1.70**   | 0.188            |
| Land type       | 0.819 (0.245)  | 3.33***  | 0.101            |
| Bullocks        | 0.538 (0.238)  | 2.26**   | 0.066            |
| Wealth index    | 0.133 (0.089)  | 1.49*    | 0.016            |
| Extension       | 0.405 (0.294)  | 1.37**   | 0.049            |
| Seed access     | 0.436 (0.243)  | 1.80**   | 0.053            |
| Distance        | -0.018 (0.021) | -0.84    | -0.002           |
| Off-farm work   | -0.082 (0.264) | -0.31    | -0.010           |
| Yield potential | 1.397 (0.358)  | 3.90***  | 0.172            |
| Acceptability   | 0.495 (0.228)  | 2.17**   | 0.061            |

Notes: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. Figures in parentheses are standard errors.

Table 3. Parameter estimates for the farm income

| Variables     | Coefficients   | t-value  |
|---------------|----------------|----------|
| Gender        | -0.008 (0.040) | -0.17    |
| Age           | -0.001 (0.002) | -0.60    |
| Education     | 0.032 (0.009)  | 3.28***  |
| Family labor  | 0.059 (0.022)  | 2.62***  |
| Farm size     | 0.849 (0.149)  | 5.66***  |
| Wealth index  | 0.056 (0.016)  | 3.38***  |
| Off-farm work | -0.212 (0.051) | -4.09*** |
| IRVs adoption | 0.131 (0.062)  | 2.09**   |
| Distance      | -0.008 (0.003) | -2.05**  |
| Road access   | 0.050 (0.046)  | 1.07     |
| Mills ratio   | -0.016 (0.005) | -3.07*** |

Notes: \*\*\* p < 0.01, \*\* p < 0.05. Figures in parentheses are standard errors.

#### Conclusions and Policy Implications

In light of ongoing debates about increasing agricultural production and food security for smallholder farmers in developing countries, this study examines the factors influencing adoption of improved rice varieties and its impact on farm income in Nepal. The study finds a positive and significant impact of IRVs on farm income, while heterogeneous factors determine the probability of IRVs adoption. Our result entails farmers' wealth status specific policy instrument to promote adoption and generate higher income for ensuring food security of rural farm households. Given the significant role played by extension-related variables, investment in extension should be encouraged. Educating farmers by formal or informal (e.g. adult learning) ways to enable them benefit from research and extension will increase the adoption rate.

#### References

- Asfaw, S., Shiferaw, B., Sintowe, F., & Lipper, L. (2012). Impact of modern agricultural technologies on smallholders' welfare: Evidence from Tanzania and Ethiopia. *Food Policy*, 37(3), 283-295.
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- MoAD (Ministry of Agricultural Development). (2013). *Statistical Information on Nepalese Agriculture*. Government of Nepal.



## **Factors Affecting Adoption of Improved Rice Varieties and Its Impact on Farm Income: Evidence from Nepal**

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### **Abstract**

The use of improved, high yielding crop varieties by rural farm households remains an option to reduce poverty, hunger and food insecurity in developing world. However, many smallholders in developing countries have not been able to use improved crop varieties. The sizable proportion of Nepalese farmers is still using traditional, low yielding rice varieties. Rice is, by far, the most important staple crop of Nepal which is grown under 35 % of the total cultivated area. However, Nepal's rice productivity is amongst the lowest in South Asian region. This study aims to determine the key factors that influence the adoption of improved rice varieties (IRVs) and their impacts on farm income among rural farm households in Central Nepal.

The data for this study were obtained from a survey conducted during 2013 crop season. We used a multistage random sampling technique to select the sample. In the first stage, four districts namely Kavre, Nuwakot, Chitwan and Rautahat were purposively selected. In the second stage, 8 villages (two villages from each district) were selected. A total of 416 farm households were drawn randomly from the selected villages in the final stage. A farm household is assumed to maximize its utility function subject to resource constraints. Thus, the adoption decision was modeled in a random utility framework. We employed a Heckman sample selection model to analyze the data.

The results revealed that household characteristics such as age, education and family labor played a significant role in adoption decisions. Additionally, farm size, land type, bullocks and wealth index influenced farmers' decisions to adopt IRVs positively. Extension service and access to seed showed positive influence farmers' decisions to adopt IRVs. Further, adoption decision appeared to be substantially influenced by yield potential and consumers'

acceptability of the grains in the market. From the second stage analysis, we found that education, family labor, farm size and wealth index showed positive and statistically significant impact on farm income. More importantly, farm households who adopted IRVs were likely to have higher farm income particularly in Terai region. In contrast, off-farm work and distance to market had negative and statistically significant impact on farm income, suggesting that households located nearby market and employed in off-farm activities tend to have lower farm income than their counterpart households located further away from the market.

Given the significant role played by extension-related variables, investment in extension should be encouraged. Educating farmers by formal or informal (e.g. adult learning) ways to enable them benefit from research and extension materials will increase the adoption rate. Additionally, set up of result/output demonstration sites for IRVs in farmers' field to show the yield difference between improved varieties and the local ones, and promote farmers-to-farmers extension can be a viable way to increase adoption, farm income and food security in the long run.

**Keywords:** technology adoption, improved rice varieties, farm income, food security, South Asia, Nepal

### References

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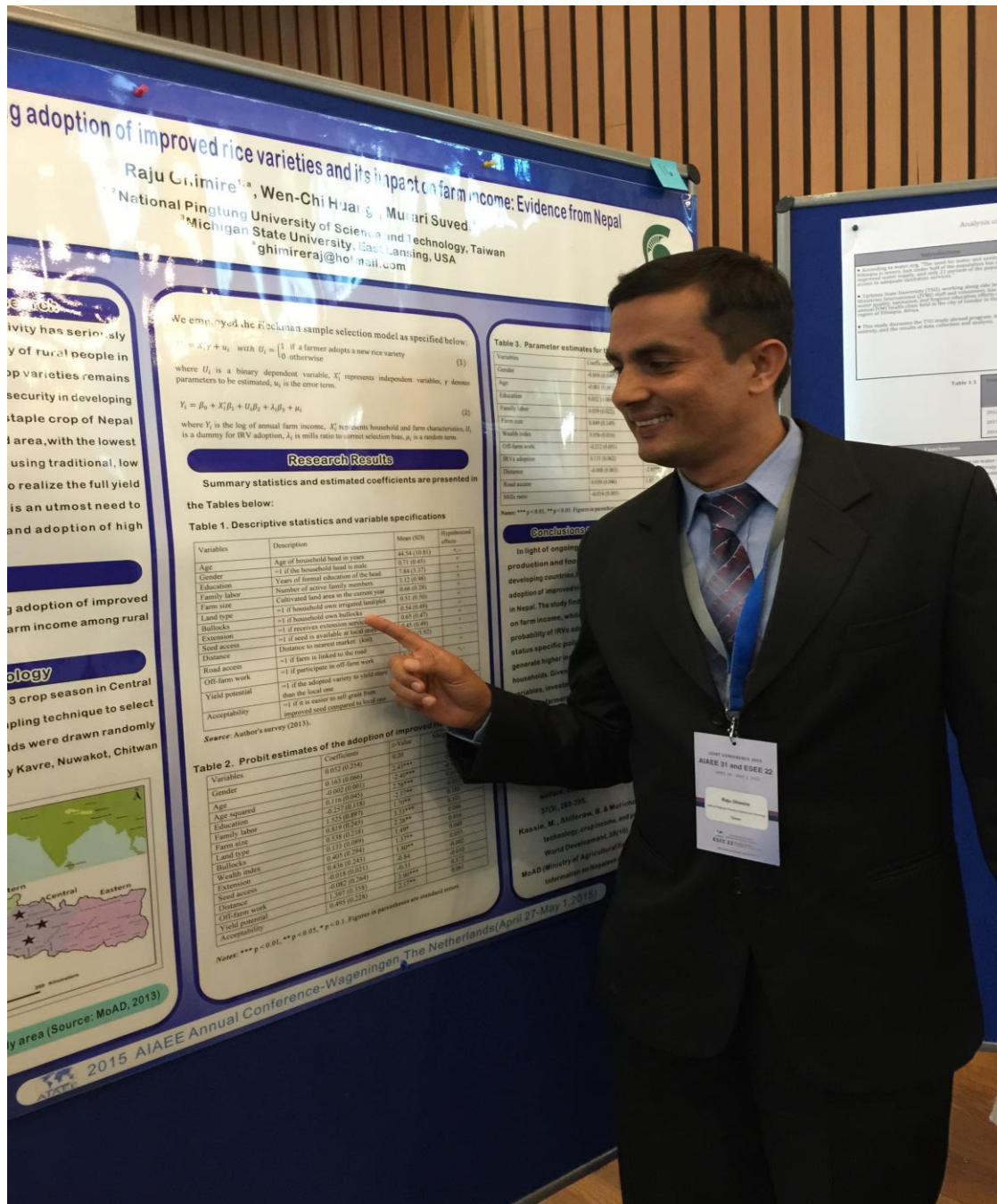
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### Certificate of the attendance of Conference



## Picture of poster presentation





## Appendix I: Conference program and schedule

### Monday, April 27

9:00 am – 4:00 pm Registration and welcome to the participants

### Tuesday, April 28

|                  |                                                                                           |
|------------------|-------------------------------------------------------------------------------------------|
| 6:00 am-1:00 pm  | Excursion to Flower Auction: Flora Holland Aalsmeer (Optional: additional)                |
| 9:00 am-6:00 pm  | Registration in the Lobby of the Forum (lunch on your own)                                |
| 9:30 am-12:30 pm | <a href="#">AIAEE</a>   Executive Board meeting (by invitation) in room C222              |
| 1:00-4:30 pm     | Poster set up in the Lobby of the Forum                                                   |
| 2:00-3:00 pm     | <a href="#">AIAEE</a>   New Member Orientation and Reception in room C106                 |
| 2:00-4:00 pm     | <a href="#">AIAEE</a>   Journal meeting in room C107                                      |
| 3:30-5:30 pm     | Partner, Spouse and Guest reception the Grand Café                                        |
| 4:00-5:30 pm     | <a href="#">AIAEE</a>   Student meeting with advisors in room C107                        |
| 4:00-5:00 pm     | <a href="#">ESEE</a>   Scientific Steering Committee meeting (by invitation) in room 031- |
| 6:00-7:30 pm     | Poster Session in the lobby of the Forum                                                  |

### Wednesday, April 29

|            |                                                                                           |
|------------|-------------------------------------------------------------------------------------------|
| 8:00am-    | Registration in the lobby of the Forum                                                    |
| 8:30-9:45  | <a href="#">AIAEE</a>   Abstracts Session I in rooms C106, C107, C221, C222, C226         |
| 9:00 am-   | Partner, Spouse and Guest tour (pick up at Forum)                                         |
| 9:45-10:00 | Break with Refreshments in the corridor in front of room C222                             |
| 10:00 am-  | Welcome to Wageningen Prof. dr. Martin Mulder, conference chair, head of the              |
| 12:00-1:30 | Lunch on the ground floor of the Forum                                                    |
| 1:30-3:00  | <a href="#">AIAEE</a>   AIAEE Committee Meetings in rooms C106, C107, C221, C222, C226    |
| 3:00-3:30  | Break with refreshments on 2nd and 3rd floor corridors                                    |
| 3:30-5:00  | <a href="#">AIAEE</a>   Abstracts Session III in rooms C106, C107, C221, C222, C226       |
| 5:15-6.30  | <a href="#">ESEE</a>   Scientific Steering Committee meeting (by invitation) in room C408 |
| 5:30-9:00  | PhD Candidates and Students Social Meeting in Restaurant Colors World Food -              |



## *Association for International Agricultural and Extension Education*

Thursday, April 30

- 8:30-9:45 am     [AIAEE](#) | Abstracts Session IV in rooms C106, C107, C221, C222, C226
- 10:00-10:45     Key note “Towards Excellence in Agricultural Education? Some Reflections of a
- 10:45-11:00     Break with refreshments on 2nd and 3rd floor corridors
- 11:00am-         [AIAEE](#) | Abstracts Session V in rooms C106, C107, C221, C222, C226
- 12:45-2:15       [AIAEE](#) | Lunch and open Business Meetings
- 2:30-4:00 pm     [AIAEE](#) | Professional Development Sessions (VI) in rooms C106, C107, C221, C222,
- 4:15-5:15 pm     Panel discussion “Lessons Learned on Competence and Excellence in Extension
- 5:15-6:15 pm     [AIAEE](#) | Awards reception in the lobby of the Forum with refreshments
- 6:00-9:00 pm     [ESEE](#) | JAEE dinner in Hotel de Wereld - Serre

Friday, May 1

- 8:00 am         Excursions (Optional: additional fee applies)
- Rotterdam World Transite Harbour, Kinderdijk, Water management