Final Report

Exploiting the synergies between sustainable urban drainage systems (SUDS) and urban farming in Vinh Yen City, Vietnam

Grantee: NIRAS

Local Partner(s): IRURE, Ministry of Construction (MOC), Local community – City of Vinh Yen, Vietnam

Project start date: *01/02/2016*

Project end date*: 31/05/2019*

_____	_____
Date	Person responsible (Signature)
03/02-2020	Morten Pedersen

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1. EXECUTIVE SUMMARY

This project was initiated in January 2016. The NCF 5 project " Exploiting the Synergies between Sustainable Urban Drainage Systems (SUDS) and Urban Farming in Vinh Yen City, aimed to implement a concrete SUDS designed with small scale urban farming elements, that besides making the urban area more resilient towards flooding, also would benefit a local community's social resilience by providing the local people, especially women the opportunity to grow crops such as vegetables, herbs and spices. The idea of the project and the design of the system were to empower local women as the grown crops could be used as household supplements or as products to be sold at a local market. Furthermore, the social elements of meeting other locals increase the social resilience of the community. The project demonstration sites consist of 5 demonstration sites, where one is a public kindergarten and the other 4 sites were private households. The pilot households and kindergarten are the places to attract the attention of surrounding community. Indeed, the information on project and conceptual design of SUDS and urban farming were delivered to their neighbours, friends, other kindergartens in Vinh Yen as well as local community living close to pilot sites.

The output includes, an inception report, flood risk analysis, textbook guidelines and training materials on SUDS, implementation of demonstration sites for SUDS and urban gardening systems, valuation of the SUDS as well as dissemination.

The key deviation for the project were the timing of construction of the SUDS and urban gardening systems. The construction were delayed, hence the project were prolonged. The construction were, however, successfully installed and the project were implemented without further problems.

The project have implemented 5 demonstration sites in Vin Yen. The result of pilot intervention in Vinh Yen city is the foundation for MOC to develop guidance, other practical projects on green infrastructure, SUDS in Viet Nam

The Pilot projects were good examples to other provinces and cities in Viet Nam. Information of project has been well disseminated through local and construction sector media (Vinh Phuc province TV news; Vinh Yen city website; MOC and VIUP websites)

The conceptual design of the 5 pilot project aims to reduce the pressure on the public drainage system through rainwater detachment from buildings. Rainwater from roofs is detached and stored for irrigation and other purposes.

There are 09 workshops and many stakeholder involvement and consultation meetings throughout project implementation.

Evaluation mission, were successfully implemented in end of March, start of April 2019. All SUDs were evaluated and the project sites visited by NIRAS. The local women that are in charge of each demonstration site, were interviewed and asked about

their experience with the project, SUDS and the urban gardening potential. Also, they did feel empowered in their household, and by implementing the SUDS.

Two public local and one final national workshops were conducted with positive feedbacks about project results and possibility of replication. SUSD will be more effective with full scale implementation. Hence, it has to be integrated into planning.

The project were successfully implemented, however, with a delay.

2. ASSESSMENT OF IMPLEMENTATION OF THE PROJECT

2.1 Achievement of Outputs and Objectives

Planned Objectives and Outputs	**Indicator(s):**	**Achievement of the objectives and outputs:**
Objective 1:		
Output 1.a: Inception Report.	Inception Report prepared covering the issues integrated in the revised application	Delivered on 30.5.2016
Output 1.a: Flood risk analysis	The flood risk map and analysis is perceived as a useful tool for climate change adaptation	Delivered in October 2016 Flood risk analysis report
Objective 2		
Text book guidelines and training materials on SUDS and urban farming. Knowledge transfer on Danish experiences with SUDS, and capacity building of local officials and NGO's on integrating urban green infrastructures into urban planning and on engaging citizens in urban farming.	Text book guidelines and training materials are prepared and endorsed by MOC. 63 provinces in Vietnam, 10 universities and research institutes, 5 professional associations and relevant departments in the different ministries are beneficiaries to guidelines, training materials and test results of SUDS. Training materials are seen as practical tools for training on SUDS and urban farming	Guidebook, training materials delivered to and performed…. At workshops in Vinh Yen and Hanoi. Guidebook *Sustainable urban drainage system and urban farming* has handed out to all stakeholders at the workshop the 9th of May 2019. Furthermore the presentation and the Guidebook has been uploaded on VIUP web-site as all stakeholders have accessed to it. (https://www.viup.vn/vn/Tin-VIUP-n2-VIUP-to-chuc-hoi-thao-cuoi-ky-bao-cao-ket-qua-du-an-d8913.html).

		The guidebook will delivered to provincial city authorities, Departments of construction throughout the countries; and other interested groups (associations, universities) as well as future activities of VIUP and IRURE.
Objective 3		
Objective 3.a A report with a description of all issues which shall be in place before an investment is started	The SUDS are perceived as applicable for flood prevention and urban farming	Short report (as annex 3 of M2 and M3a progress report)
Objective 3.b SUDS and urban farming. Actual implementation of SUDS at street level and roof tops and engagement of local citizens (mainly women).	The technical expertise and conceptual design of SUDS are delivered. Set-up for the pilot investment project. Local contractors adhere to BAT, working conditions. Local citizens are involved and trained in SUDS and urban farming	The five pilot project were successfully implemented. 1. Dong Da kindergarten 2. Household of Ms. Huong – Lien Bao ward 3. Household of Ms. Thuy – Phan Dinh Giot street 4. Household of Ms. Giang – Phan Dinh Giot street 5. Household of Ms. Cau – Tran Khanh Du street. The constructed demonstration sites were implemented. It were however some delays in starting the constructions as well as final approval from VIUP-IRURE for the two first demonstration sites, as the contractor needed to provide additional information and documentation.
Objective 4		
Test results. Monitoring results on the retention effect (volume of rainwater) of the different SUDS, testing of the applicability of SUDS when also used for urban farming in Vietnam, and	The test results are satisfying. The local women involved are satisfied with the outcomes of the urban farming combined with SUDS	*The evaluation report: SUDS pilot implementation* was finalised in May 2019. The evaluation report covers both technical and gender aspects and stakeholder survey conducted

evaluation of local women's experiences with using SUDS for urban farming (including potential financial gains).		
Objective 5		
Dissemination. Awareness raising and workshop plan;	IRURE and MOC distribute guidelines and training materials throughout the project period.	Information, guidebook, training materials uploaded on VIUP website. Information on project was uploaded on Vinh Yen website Short movie (news) on project Project Training materials were incorporated into other VIUP annual trainings. Local media has been disseminating project progress and results during the entire Project period. The local is also preparing a short film about the project and SUDS and this will probably be finalised in the autumn 2019. Study tour in Denmark (9/2016): Representatives of Vinh Yen authority, MOC, IRURE, VIUP. Workshops performed are all 9 workshops

2.2 Deviations from the planned Outputs and Activities

The guidance on urban farming was delivered in M2, however, in regard to SUDS, MOC preferred a traditional SUDS guidance, since SUDS is new in Vietnam and in order to disseminate knowledge on the importance and potential of SUDS a more thorough guidance on SUDS was needed. NIRAS supported this need to push the climate change adaptation agenda and action in Vietnam forward. There already exists a lot of SUDS guidance's, whereas NIRAS provided IRURE with knowledge on these guidance's and with directions to the most comprehensive, thorough and well-known SUDS guidance's in the field. NIRAS has also contributed with knowledge on the function of different types of SUDS and the importance of controlling water upstream a flood risk area. This were presented via a workshop, ppt-material and as recommendation in the hydraulic reporting of the flood risk analysis of Vinh Yen. The target group of the SUDS guidance were government officials, whereas the target group of the urban farming guidance were the general public – The NCF pilots are

integrated in the SUDS guidance as an example of a SUDS with added value. The SUDS were integrated in the Urban Farming Guidance during milestone 4.

05 of the planned workshops in the stakeholder involvement plan has not been implemented as initial planned. In order to ensure efficiency (e.g. resources, number of participants), the contents and purposes of those 5 skipped workshops was integrated into 9 conducted ones. For instance, SUDS maintenance workshop was incorporated into 02 public training workshops on SUDS guidance; workshop on Guidebook introduction at Vinh Yen. Local evaluation workshop was integrated into stakeholder survey and interview as well as final workshop with participation of Vinh Yen People's committee and other Vinh Phuc provincial Departments. Initially, the project team intent to organize a workshop at university. However, instead of university workshop, one of project team is Dr. Doan Hoang Giang (a lecturer of Environmental Faculty - National University) who took 02 students get involved in some evaluation activity and delivered project info through his lecture sections at the university.

2.3 Achievement of NCF indicators

NCF indicators	Results
1. Number of beneficiaries reached (women/men)	Demonstration facilities: Kindergarten: 24 W: 1 M and 340 children Households: W: 4 M: 4 and 9 children/youth 42 officers of Vinh Yen city and Vinh Phuc province authority have been strengthened regarding to SUDS, climate change response and urban farming.
2. Number of people with increased resilience to climate change (women/men)	28 W/5 M and 349 Children/youth 105 local people (71women/34man) who were provided knowledge on SUDS, climate change responses through pubic community training workshops.
3. CO2e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	Adaptation project
4. Number of green business concepts tested	The household prefer use the products, like vegetables, in own family and friends.
5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	0 (but it is expected that the contractor will develop the market)

6. Number of people with improved livelihoods/income-generating possibilities (women/men)	4 women/4 men
7. Number of multi-stakeholder partnerships developed	Pilot sites are places to share knowledge on SUDS that leading to social resilience 25 agencies, associations, NGOs, universities at all levels. The project has been very smoothly implemented by the MOC, VIUP, IRURE, NIRAS Vietnam and NIRAS. - NIRAS and IRURE/VIUP will continue exploring further opportunities together. - The project has been smoothly implemented with the support of Vinh Yen people's committee, local contractor, Dong Da kindergarten, 04 households and other stakeholders involved. - All stakeholders are aware that the project has been supported by NDF. - NIRAS also found the cooperation with other agencies, NGOs, Associations, universities in Vietnam for future projects. Furthermore, those agencies had information of supporting fund for their future project proposals.
8. Amount of funds leveraged (actual project co-financing and possible secured future investments for scaling-up/replication)	127,294 EURO

3. CLIMATE CHANGE

The dimensions of the rainwater collection structures for the 5 pilots are listed in Table 1. Pilot 1 collects most of the rainwater falling on the lot area out of the 5 pilots. Pilot 1 also has the largest storage tank relative to the rainwater catchment area. Consequently, Pilot 1 is expected to have the best potential for storing runoff from the catchment, if the water consumption for irrigation is not taken into account. The demonstration plants are not large enough to have a substantial effect on the adaptation of the city of Vinh Yen to flooding. However, if scaled up in the city, the evaluation do deem the potential to be large enough to delay the run off to the sewage system.

Table 1. Areas and storage volume for the 5 pilot projects.

Pilot location	Lot area [m^2]	Catchment/water harvest roof area [m^2]	Catchment as percentage of lot [%]	Total storage volume [m^3]	Ratio storage to catchment [m^3/m^2]
Ms. Cau and Mr. Lich	200,0	76,5	38,3	5,0	0,065
Mr. Thanh; Ms. Giang	200,0	75,9	38,0	3,5	0,046
Ms. Nguyen Thi Huong	284,0	84,0	29,6	5,0	0,060
Ms. Ngo Thi Thanh Thuy	350,0	81,3	23,2	5,0	0,062
Dong Da Kindergarten	3785,5	876,0	23,1	10,0	0,011

In additions, tap water savings can be done up to around 2 thirds. Basically around 66% tap-water savings in certain periods can be made, thus saving around 200 000 VND/month.

The project has also created awareness on climate change and floodings for the local community as well as nationally. Throughout project implementation several workshops were held that provided knowledge, experience on climate change responses in urban development and planning as well as SUDS implementation for sustainability in the light of climate uncertainty. The target groups of those workshops are planners, officiers working on urban development and planning at all levels and local people of Vinh Yen city.

4. DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES

Indicators

Description	Acheived indicator
Flood risk analysis. A flood risk analysis will be carried out in the project start up to select the pilot area. The outcome is a flood risk map which will also be useful for the city government to plan for future adaptation projects.	Evaluation report on the usage of the flood risk analysis
Text book guidelines and training materials on SUDS and urban farming.	Text book guidelines and training materials delivered
Engagement and capacity building	9 workshops have been performed
Pilot projects developed	5 pilot projects have been implemented and are functioning

Cross cutting issues

Several costs savings have been implemented, especially for the workshop and transportation costs. The grantee have tried to lower the amount of travels during the project, avoiding emissions of international travels as well as reducing the travel budget output.

Women and SUDS have been a priority throughout the project, and it is therefore the evaluation report evaluated the implementation by the eyes of the women in each family.

The project also connected with related projects, for example, Vinh Yen is one of three cities within the "Green City" project of Asian Development Bank (ADB) and will implement integrated development with improving urban environment through implementation of green city action plans (GCAPs).

5. ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT

5.1 Relevance

The trainings and showcases of SUDS has been extremely important. Without visual showcases through demonstrations the decision makers would understand the solutions to a localised problem that is increasing with climate change. By targeting decision makers and urban planners, the projects have built up a knowledge around how SUDs can help in retention of water during heavy rainfall events.

5.2 Effectiveness

All objectives of project were well archived by enforcement of grantee and local partner under the fully support of Ministry of Construction, Vinh Yen authority and 05 selected pilots. The close cooperation between all the stakeholders have been a key to the success and effectiveness of the project.

The recommendation in flood risk analysis report was highly appreciated by Vinh Yen authority. According to their responses, those kinds of SUDS solutions would be implemented in the future urban development project.

5.3 Efficiency

The project has been efficiently implemented with utilising less than budgeted for the same output.

5.4 Impact

The project contributed to the implementation the Target Program, National Strategy on responding to climate change; The national strategy on green growth as well as the "Vietnam urban development to cope with climate change in the period of 2013-2020" for Vinh Phuc province in particular and the construction sector in general.

Also, it contributed to raising awareness and strengthening capacity of stakeholders on climate change response as well as sustainable urban drainage system and urban farming in urban planning and development (at all levels).

The pilot implementation results in Vinh Yen city are the basis for the Ministry of Construction to develop guidelines and regulations as well as other pilot projects on green infrastructure and SUDS and urban farming.

Creating a premise to replicate the application of sustainable drainage systems and urban farming to other provinces.

Guidebook and training material on SUDS, SDGs will be integrated into other future activities of VIUP (trainings, decision and policy making assisting).

5.5 Sustainability

The financial sustainability of the project is relatively low, as the families cannot afford to finance the SUDs and urban gardening systems by themselves. The evaluation showed that around 25% of the investment of VND 20,000,000 could be possible. So either the technologies have to be downscaled, or the local agencies need to find a way for supporting in financing options.

However, the implemented demonstrations have a long term effect and are already spreading the word on their applicability. The project have also created a massive capacity building in which agencies and ministries are more knowledge now about the SUDS potential in Urban Master plans. This is a long term sustainability effect, and will hopefully grow as it is integrated in the original plans for the people trained in this.

6. POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS

There is a definite potential for scaling up. However, national authorities do not have money for directly finance the SUDs. Hence, a business model need to be proposed, there the technical requirements and possibilities are connected with the financial

possibility by the home owner. However, there need to be a national priority for Vietnam or any municipality to promote the SUDs systems locally. The evaluation showed that around 25% of the total investment could be covered by the home owner, so if the design could be simplified, the home owners could be able to finance this by themselves, or to a certain extent. It could be suggested that the municipality can give a support to homeowners if they are to invest in this type of solutions, increasing the potential for the scaling of the investments, just like a subsidy.

7. UNEXPECTED OUTCOMES

The project fulfilled all it outputs.

But due to the good progress MOC initiated supplementary activities. The research on green space and water storage planning and design responding to urban flood has been being conducted by VIUP.

According to vice chairman of Vinh Yen authority in the final workshop, some households in the city start to replicate the SUDS and urban farming model.

NIRAS has prepared a Guideline for how to integrate SDGs in adaptation projects and the Vinh Yen project has been used as an illustrate example.

SUDS approach has been integrated into plans formulated by VIUP and IRURE.

8. LESSONS LEARNT

The five selected pilots were four households and one kindergarten. It was considered to include larger public areas, like market places and roads as pilot projects, but these projects will take nearly 3 years to implement, so it has not been possible to include in the NCF5 project due to the long implementation period.

SUDS should be integrated into regulations and planning to secure smooth implementation and consensus among stakeholders involved. This should have been a supplementary activity in the project.

9. FINANCIAL SUMMARY

Please summarise below the project financing per project partner. Add partners as applicable.

Table 1. Project financing per partner

	Financing, EUR					
Expenditures, EUR	NCF	Grantee	IRURE	MOC	Local community	Total
Grantee	211.617					
IRURE	224.720		93.562			
MOC				31.408		
Local community					5.000	
Total	436.337		93.562	31.408	5.000	566.304

10. CONCLUSIONS AND RECOMMENDATIONS

The project have been successfully implemented. Throughout the implementation, the project brings benefits to the Ministry of Constrution, Vinh Yen People's committee, related departments and agencies of Vinh Phuc province as well as local community and some local private construction companies.

The project contributed to implement the tasks in the National target programme and strategy responding to climate change; National strategy on Green growth; the National plan on urban development responding to climate change in the 2013-2020 period for Vinh Phuc province and the Ministry of construction.

Project activities contributed to awareness raising, capacity strengthening to stakeholders involved on climate change responses, SUDS and urban farming in urban planning and development at all levels.

The result of pilot intervention in Vinh Yen city is the foundation for MOC to develop guidance, other practical projects on green infrastructure, SUDS in Viet Nam. Indeed, getting the inspiration, IRURE has been developing a guidance on storage and green space as SUDS in response to urban flooding and inundation in the light of climate change.

Pilot project is a good pattern for replication to other provinces and cities in Viet Nam. Information of project has been well disseminated through local and construction

sector media (Vinh Phuc province TV news; Vinh Yen city website; MOC and VIUP websites)

The recommendations in Flood risk analysis was much appreciated by Vinh Yen authority and would be integrated into future local plans and projects on climate change responses and urban flood mitigation.

The project contributed to implement the green city action plan (GCAPs) under the ADB support. It is well matched with 9 in 17 of SDGs also.

There are some lessons learnt on how some support and decisions should have been taken earlier in the project e.g. the volume of the SUDS tank for better accommodate the drought season.

Also, the construction of the SUDS needed a bit more supervision that originally thought, but IRURE did a close due diligence of the conducted work and stopped the process if not enough documentation were provided by the construction firm.

It is recommended that for future SUDs project, the financial model shall be evaluated firstly, maybe reducing some of the technology features, in benefit of a better financial model.

The project has also created a massive capacity building in which agencies and ministries are more knowledge about the SUDS potential in Urban Master plans. Therefore, to maximize the effectiveness of SUDS, it has to be integrated into master planning in order to ensure the mandatory implementation. This is also the chance to scale up project results.

As Vinh Yen and other medium cities have experienced rapid development, urban master plans and zoning plans have been being formulated and adjusted to meet the requirements of new changes. Normally, in spatial and physical planning, green space is not planned and designed as SUDS function. Hence, it is reasonable that SUDS could be a planning initiative to help the city more resilient to future climate and natural disaster risks as well as sounds environment and sustainability. This could be the idea to replicate this project results as full scale of SUDS approach to other cities in Viet Nam at planning, decision making and mechanism of well implementation.

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Annex 1 Project completion fact sheet

Project Name:			
Country/ Region:	Vietnam	**Financing:**	
		EUR	**%**
Nordic Partner:	NIRAS	0	0
Local Partner:	IRURE	93562	17
Other Partner:	Local community	5000	<1
	Ministry of Construction	31408	6
	NCF grant disbursed	436337	77
	Total	**566304**	**100.00**
Classification:	adaptation		
Project cycle:	Contracted: January 2016 Closing Date: January 2020		
Project description:	Exploiting the Synergies between Sustainable Urban Drainage Systems (SUDS) and Urban Farming in Vinh Yen City, aimed to implement a concrete SUDS designed with small scale urban farming elements, that besides making the urban area more resilient towards flooding, also would benefit a local community's social resilience by providing the local people, especially women the opportunity to grow crops such as vegetables, herbs and spices. The idea of the project and the design of the system were to empower local women as the grown crops could be used as household supplements or as products to be sold at a local market. Furthermore, the social elements of meeting other locals increase the social resilience of the community. The project demonstration sites consist of 5 demonstration sites, where one is a public kindergarten and the other 4 sites were private households. The pilot households and kindergarten are the places to attract the attention of surrounding community. Indeed, the information on project and conceptual design of SUDS and urban farming were delivered to their neighbours, friends, other kindergartens in Vinh Yen as well as local community living close to pilot sites.		
Key results:	**NCF indicators**	**Results**	
	1. Number of beneficiaries reached (women/men)	Demonstration facilities: Kindergarten: 24 W: 1 M and 340 children Households: W: 4 M: 4 and 9 children/youth 42 officers of Vinh Yen city and Vinh Phuc province authority have been strengthened regarding to SUDS, climate change response and urban farming.	
	2. Number of people with increased resilience to climate change (women/men)	28 W/5 M and 349 Children/youth 105 local people (71w/34m)	
	3. CO_2e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	N/A	
	4. Number of green business concepts tested	1	
	5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	0 (but it is expected that the contractor will develop the market)	
	6. Number of people with improved livelihoods/income-generating possibilities (women/men)	4 women/4 men	
	7. Number of multi-stakeholder partnerships developed	25 agencies, associations, NGOs, universities at all levels.	
	8. Amount of funds leveraged (actual project co-financing and secured future investments for scaling-up/replication)	127,294 Eu	
Project performance:	**Main Expected Outputs**	**Achieved**	**End-of-project status**
	- Flood risk analysis for the pilot area of Vinh Yen city.	yes	completed
	- SUDS and urban farming guide book.	yes	completed
	- SUDS, urban farming, climate change response in urban planning and development; SDGs training materials	yes	completed
	- Practical SUDS and urban farming implementation for Dong Da kindergarten and 04 households in Vinh Yen city.	yes	completed

	- 09 Workshops and trainings	yes	completed
	- Evaluation of SUDS pilot implementation	yes	completed
Final beneficiaries:	- Ministry of construction - Vinh Yen people's committee - Dong Da kindergarten - 04 pilot households - VIUP - IRURE		
Climate change impacts:	- Awareness raising on climate change response, flood mitigation in urban planning and development for stakeholders and community in Vinh Yen city and Vinh Phuc province. - Contribute to implement national and local strategies and programs on climate change responses.		
Development impacts:	- Contribution to Vinh Yen green city action plan; climate change action plan - Recommendations of flood risk analysis on SUDS would be incorporated into future urban planning and development project		
Innovation, technology and learning:	- Urban farming as an integrated element of SUDS may reduce the maintenance costs of SUDS - Automatic irrigation system help to safe time of taking care crops. - SUDS and urban farming set up would be a new business		
Partnership:	- The project has been very smoothly implemented by the MOC, VIUP, IRURE, NIRAS Vietnam and NIRAS. - NIRAS and IRURE/VIUP will continue exploring further opportunities together. - The project has been smoothly implemented with the support of Vinh Yen people's committee, local contractor, Dong Da kindergarten, 04 households and other stakeholders involved. - All stakeholders are aware that the project has been supported by NDF. - NIRAS also found the cooperation with other agencies, NGOs, Associations, universities in Vietnam for future projects. Furthermore, those agencies had information of supporting fund for their future project proposals.		
Sustainability and replicability:	- Pilot project is a good pattern for replication to other areas in Vinh Yen as well as other provinces and cities. - A basic for MOC to develop guidance, other practical projects on green infrastructure.		
Lessons learned:	- SUDS should be integrated into regulations and planning to secure smooth implementation and consensus among stakeholders involved. - The financial model shall be evaluated firstly, maybe reducing some of the technology features, in benefit of a better financial model.		

Annex 2 Logical Framework Matrix

Enclosed as a separate document.

Annex 3 Pictures

Pictures submitted with each progress report.

Annex 4 Other supplementary deliverables/documentation

N/A

Annex 5 Impact story

Title : Children in Vinh Yen contributing to a blue and green world

The project of Exploiting the synergies between sustainable urban drainage systems (SUDS) and urban farming in Vinh Yen City, Vietnam is undertaken by NIRAS A/S Denmark and Institute for Environmental planning, urban and rural infrastructure

(under Vietnam institute for urban and rural planning) by the fund of NCF and co-financing of Ministry of Construction and local authority as well. Dong Da Kindergarten is one of the selected pilot sites for SUDS intervention.

Vietnam, historically an agricultural country, is facing changes as it moves to a manufacturing-based economy, taking its toll on the environment.

Dong Da kindergarten is situated in residential area of Dong Da ward in Vinh Yen city with 25 staff (24W/1M) and 340 children. Before project implementation, the gardens in the kindergarten was allocated for flowers only and they were designed not well accessed. Due to the project, those places were redesigned as farming gardens. The concept of design is rainwater harvesting from the roofs, storing for irrigation, providing food and agriculture experience to children as well as safe outdoor playground. The education section includes taking care crops, type of crops, name of vegetables. Furthermore, some parents contribute seeds for the farming kindergarten. In return, the knowledge on SUDS, farming and vegetable will be shared to the parents.