Productive & Climate-resilient Landscapes (PCRL)

Holistic and integrated approach to development of the climate resilient communities

Review of the best practices of PIN, addressing the changes in the landscapes among the communities in the urban, rural and natural environment; outlining the role that resilient and productive landscapes play in Food security, Disaster Risk Reduction and Development.

People in Need, January 2021

PEOPLE IN NEED CZECH REPUBLIC

Alliance 2015

towards the eradication of poverty

HEALTHY LANDSCAPES and LIVING ENVIRONMENT

Urban and rural landscapes all over the world are changing in unprecedented pace. So is the variety of related environmental problems and numbers of vulnerable population living in risk-prone areas.

People in Need (PIN) had been targeting these problems both in response to crisis or as solutions to unsustainable development, while the pressure on both urban and rural area sis increasing.

Ethiopia: deforestation rate: -141 000 ha a year;
urbanisation: 21%, +4,8% a year

Cambodia: deforestation rate -219 000 ha a year;
urbanisation: 23%, +3,3% a year

Philippines: deforestation rate: -157 000 ha a year;
urbanisation: 47%; +1,9% a year

Mongolia: deforestation rate: -83 000 ha a year;
urbanisation: 68%; +1,9% a year

Source: Mongabay; IBRD/IDA

PIN strives to support livelihoods of its beneficiaries, but not doing so at an expense of a healthy and stable environment, that would undermine any sustainable result and broaden their vulnerability *

We want to see urban dwellers to develop their businesses and settlements, but be free from pollution, floods, fires and many other risks that come with high concentration of people. We do want to sustain farmers production and improve their yields in climate-resilient manner thinking of biodiversity. We do want higher carrying capacities of lands for rural population and pastoralists, keeping in mind a diversity of natural resources, without deforestation, overgrazing and degradation.

We want to sustain the ecosystem services of the healthy landscapes and ensure their future resilience.

Photo © PIN archive

HOW TO DEVELOP THE CLIMATE-RESILIENT AND PRODUCTIVE LANDSCAPES?

In last decade, PIN developed several programs that addressed the challenges to sustainable and resilient management of natural resources and landscapes. The solutions were found in technology transfers, agriculture trainings, community development, capacity building, good governance and analysis.

MAIN PURPOSE

To identify the best ways of targeting the problems and risks related to degradation of rural and urban landscapes or climate dynamics and improving the resilience of people's livelihoods.

It's not all about the technology!

Often, we can describe the problems that we see in the environments around us, but we don't know how to address them properly and where to begin. PCRL helps PIN country teams to navigate this seemingly complex issue, and provides the guidance in selection of key objectives in programming. Along with efficient use of PIN capacity, know-how and innovation.

How to achieve productive and resilient landscapes?

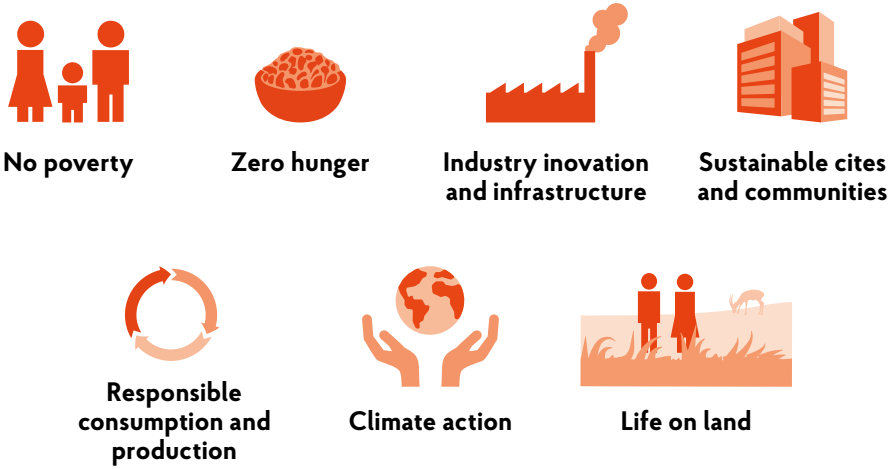
While the ultimate goal of the landscape-related project are the physical changes in the environment, the crucial changes related to landscape management are actually those related to community attitudes, behaviours and institutional set-up. Technical solutions are essential and need to be delivered in high quality, so PIN needs to ensure appropriate technical capacity. None the less, gaps in technical know-how and physical solutions are more than often not the only barrier for the target populations to solve the problems they are facing, so key expertise of PIN is the development of landscape management systems in holistic and integrated approach.

How relevant is pcrl for your programming?

pCRL is relevant in multiple contexts for example:

- → Climate change - adaptation, mitigation, energy security
- → Resilience - food systems, nutrition, food security, livelihoods
- → Water access - droughts, irrigation, water sources
- → DRR - floods, droughts, land-slides, emergency preparedness
- → Good governance - land-grabbing, urban planning, land-use planning, cadasters
- → Natural resource Management - afforestation, erosion, soil management
- → Migration - mitigating environmental drivers, reducing impacts

SDGs



Multiple international agencies are following the same trend:
UN IPCC, Aug 2019: Climate Change and Land
GIZ-Sept 2019: Climate-Smart Landuse in ASEAN
US Aid, Dec 2019: Integrating Biodiversity and Sustainable Landscapes in US Aid programming

COMPONENTS OF PCRL

KEY OBJECTIVES	PIN EXPERTISE & TECH. SUPPORT	COMMUNITY WORK	KEY
COMMUNITIES RESILIENT to CLIMATE CHANGE		**SUSTAINED PRODUCTION & LIVELIHOODS**	
	Component I ***Technical support & innovation***		
→ Technical measures that improve the living and working environment → Risk mitigation → Stabilised and improved production	→ Trainings → Behavioral change campaigns → Piloting innovation → Infrastructure and material support	→ Public & private entity engagement → Adoption of new techniques → Field technical activities	→ Adoption of new techniques for the landscape management → Sustainable everydays practices and behaviours
	Component II ***Capacity building & advocacy***		
→ Legal frameworks adjustments → Monitoring & Response mechanisms, EWSs → Advisory support	→ Extension systems development → Data management e.g. iTenure	→ Public awareness → Experience sharing → Workshops	→ Capacities and attitudes of authorities → Management capacity and support to communities
	Component III ***Community landscape planning***		
→ Design of the resilient landscape → Respect among landowners and users	→ Technical Landscape design → Carrying capacity assessments e.g. Story Maps	→ Community awareness and feedback sessions → Power mapping → Stakeholder facilitation	→ Community needs → Land ownership → Land access → Decision making
	Component IV ***Participatory landscape analysis***		
→ Risk and hazard mapping → Vulnerability assessment of communities	→ Mapping and remote sensing analysis → Climate profiling and modelling e.g. Climate modeling	→ Participatory field socio-ecological surveys → Community monitoring systems	→ Land-use → Environmental dynamics → Climate change

EXAMPLES OF PIN'S EXPERIENCE

Czech Republic

In Czech republic, PIN provided the emergency assistance after the extensive floods in 2012. The aftermath of the floods then led PIN to engage in the work with Communities in flood-prone areas and engaged in:

- → apacity building of the local administrations
- → awareness raising among communities and general public (see also movie "Landscape in Need"). In 2020, PIN plans to develop the Czech programming further.

Afganistan

In Afganistan, between 2011 and 2018, PIN carried out a variety of projects oriented towards the management of natural resources in the Southern Balkh and Samanghan provinces, as supported by **CzDA, BMZ and EC**. The initial emergency CfW program developed into DRR (Disaster Risk Reduction), which addresses the risks of flash floods, droughts, erosion and landslides, by using tools such as

- → the participatory design of community projects
- → GIS-driven risk analysis
- → capacity building of community structures

Ethiopia

In **Ethiopia**, PIN had been developing its Environment, Livelihood and Agriculture program since 2008. Over the time, initial activities focused on Agriculture production and Reforestation developed in holistic programming, featuring its projects in Sidama – **Participatory Development of Productive Landscapes** and Alaba **Increased Ecological Stability of Dijo-Bilate River Watersheds**. Namely in reaction to deforestation, erosion, droughts and floods.Program includes **most of the components PCRL**:

- → Participatory Community landscape design
- → Capacity building of the local authorities
- → GIS-driven landscape planning and modelling
- → Behavioural Change Design
- → Land-access facilitation.

Nepal

In Nepal, PIN is recently assisting with the assessment of informal settlements that developed in risk-prone areas after the 2015 earthquakes and as a result of urbanisation. Risks related to landslides, or climate-change-induced shocks are addressed with similar tools though:

- → GIS-driven risk analysis
- → participatory community planning
- → capacity building of community structures through "User committees".

Philippines

In Philippines, recovery work after Yolanda hurricane focused primarily on agriculture livelihoods in rural areas. Addressing the risks related to climate change through DRR or development activities however often meets the barrier of complicated land-right and land-access issues. Therefore, PIN initiated of **Joint Action for Land Rights**, which included key component of PCRL:

- → Facilitating Land Access and
- → Capacity building of the local authorities.

Cambodia

PIN mission to Cambodia, run the series of projects since 2014 based on the Habitat program and DRIEL (Disaster Resilience through Improved Education and Livelihoods) projects. These focused both on urban landscape development (Phnom Pen) and rural landscapes (Koh-Kong), targeting namely the issues of slow-onset crisis, land-grabs, climate change and urban development. The program used a **variety of tools compatible with PCRL**, including:

- → Participatory community urban/rural landscape design
- → Capacity building and advocacy among local authorities
- → GIS-driven landscape planning and analysis
- → awareness among the decision-makers; see also the topics further described in City for All Conference

CHANGES IN THE TARGET COMMUNITIES DUE TO IMPROVED LANDSCAPE MANAGEMENT

Ethiopia

Global climate change, periods of extreme drought, deforestation, excessive cattle grazing, and, above all, unsustainable farming practices result in the degradation of agricultural land, which is also greatly affected by extensive erosion. There is a significant reduction in, or rather a loss of soil fertility, which negatively affects agricultural production and threatens the primary livelihood of the local people.

Therefore, we focused on increasing the ecological stability of the landscape in south-western Ethiopia, one of the most vulnerable areas. We strive to restore the proper management of the landscape so that the local people are able to start actively using it again. We teach them how and why to build appropriate erosion control measures such as flood walls, retention basins, protective ditches, and microterraces. We also teach them to plant special types of grass and trees that help the soil resist flooding, and which also act as fodder for livestock.

"Before we learned how to correctly build water retention basins and properly manage the landscape, the fertility of our soil was very low. Now I see considerable changes for the better," says farmer Kasim Berkera. He adds that these measures help prevent the flooding that used to destroy the top layers of the soil. ***"I would like to extend the grassy areas, as they are a great source of fodder for my livestock."*** Our local team works closely with 56 agricultural workers, 30 government representatives, and 70 representatives of local communities. As part of this extensive project, we have already helped implement various erosion control measures on more than 3,341 hectares of land, which benefits up to 35,000 families

Afghanistan

In 2018, PIN finalized it's intervention in Samangan province, Northern Afghanistan. Besides bad security situation, the main obstacle are very harsh natural conditions. The situation is made even worse by continuous deforestation activities, diminishing water resources, soil erosion, and the increasing devastation of the landscape, which leads to seasonal flooding. ***"I remember when the mountains all around were covered with bushes and pistachio forests. Now, however, the mountains are bare; people have turned them into fields and so there is nothing to stop the flood waters,"*** confirms 52-year-old farmer Abdul Hay. ***"Samangan River flows through our village, and quite often a flood damages homes and fields,"*** he adds.

The most important methods promoted among farmers include soil protection, building terraces, sowing in rows, appropriate crop rotation, and minimum-tillage methods. The farmers are also learning how to establish new orchards and forestation methods. For the latter, we train selected farmers how to start tree nurseries. They learn new technical skills, such as planting, tree care, and grafting.

At the same time, PIN established Community Resource Management Committees (CRMs), which serve as a platform for the formulation of the Landscape management plans and community projects within targeted Watershed. Private actors, like Abdul Hay then prepare seedlings of fruit and forest trees that they sell throughout the area. ***"First of all, I'm a farmer. But I manage a forest nursery because it has become the main source of my family's income,"*** explains Abdul Hay, ***"Additionally, it allows me to offer our people seedlings, help them to protect the soil."***

ADDED VALUE OF PIN

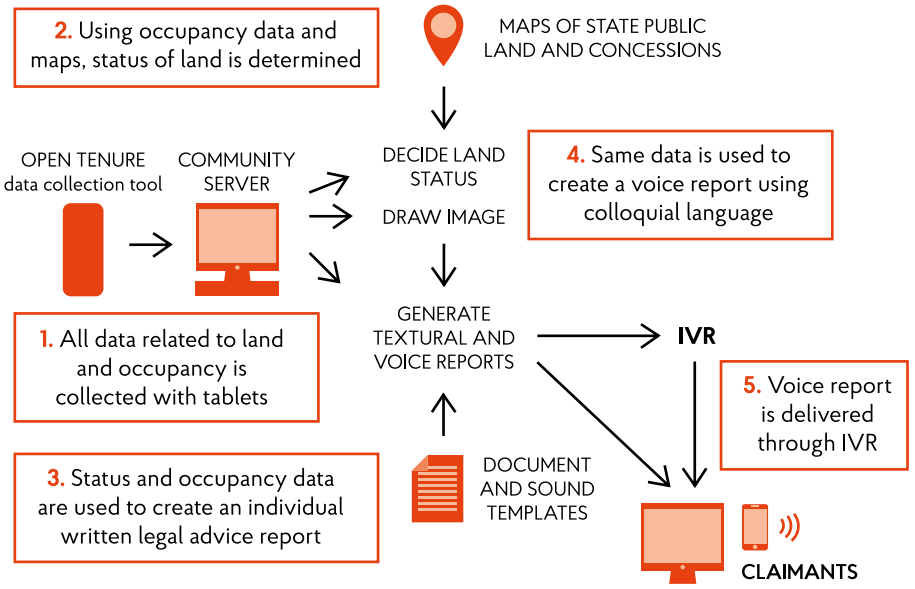
Innovation of PIN

GIS landscape analysis and climate modelling

In order to assess the environmental dynamics in the target areas, PIN uses analytical tools of Geographical Information Systems (GIS), that are not only used for visualisation, but also for the risk analysis and for assessment of the dynamic. Typically, the analysis focuses on the assessment of a variety of risks: deforestation, flood protection, erosion, landslides etc. Recently, PIN and its partner develops tools for the assessment and monitoring of the vulnerability to climate change through climate sampling, modelling or reporting.

iTenure

New software tool co-developed by PIN and introduced in Cambodia, helps eviction-prone households to strengthen their land tenure claims and prevent land conflicts. Producing highly cost-effective household-specific information packages, iTenure provides vulnerable communities with easily digestible information on the status of their land claims and legal advice on how to secure appropriate land titles. You can read more in the PIN Inspired bulletin - Innovations



Use of drones

PIN used UAVs in Cambodia to determine the best sites for the installation of automatic water gauges and for the preparation of elevation maps of surrounding areas. In Cambodia's capital, PIN, in collaboration with local authorities, mapped 35 urban communities using drones. Orthophoto maps of these hazard-prone and impoverished settlements which house thousands of people were used for the preparation of District and Commune Development Plans and the subsequent upgrading of local infrastructure. This ultimately increased access to basic services in the area. See Inspired - Innovations

UAVs were also used e.g. in Ulan Baatar, Mongolia, for monitoring of the air pollution and efficient use of energy

Use of Participatory monitoring

In Ethiopia, PIN provide extensively the close technical support and expertise to landscape analysis and planning as well as the capacity building of local actors. In Alaba, Sankura and Sidama woredas, this support had been continuous over last 3-6 years, so the PIN started to work more closely with authorities and communities in Participatory Monitoring of the agreed Landscape Management Plans. PIN therefore established join Landscape monitoring platform, trained local farmers and authorities, and established data platform which is used both for monitoring and presentation of the program results.

MORE USEFULL REFERENCES OF PIN:

Websites:

Durable solutions
City for All Conference
Breathe Mongolia – Air Qaality in Mongolia

Publications:

Žijeme v záplavovém území *(Living in flood prone areas)*
City at risk? Phnom Penh Hazard Vulnerability and Capacity Assessment
Humans Rights Based Spatial Planning in Cambodia
Alternative Site planning in Phnom Penh
An Overview of Hazard Mapping in Cambodia

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