On-farm demonstration and exchange visits: women demonstrating the system to visitors (Madhav Dhakal)

Participatory action research on drip irrigation (Népal)

DESCRIPTION

Conducting participatory action research with farmers and line agencies for demonstrating, disseminating and scaling up drip irrigation.

Most farming in the uplands of Nepal's midhills is rainfed with many fi elds remaining fallow during the dry season due to lack of irrigation water. The People and Resource Dynamics Project (PARDYP) water demand and supply survey identified scarcity of irrigation water as a major issue in Nepal's midhills. To assess the potential of drip irrigation to address this problem, the University of British Columbia (UBC) in 2000/2001, in collaboration with PARDYP, tested a low cost irrigation drip set and a more costly set in the Jhikhu Khola watershed; and PARDYP and Tribhuvan University's Institute of Engineering (Nepal) tested the low cost set with farmers at another site at Kubinde village, Kavre.

PARDYP started research on drip irrigation at an agricultural research station (the Spices Crop Development Centre at Tamaghat, Kabhrepalanchok) and brought different stakeholders, principally farmers, to the station to learn. After seeing the trials some farmers, especially those living near the research station, started testing drip irrigation on their farms. From 2001 to 2004, PARDYP subsidised 50% of the cost of the drip sets to most adopting farmers. PARDYP organised several farm visits for stakeholders to the research station and farmers' fi elds. The number of interested farmers increased and many started testing and demonstrating the technology on their farms. PARDYP provided technical support during installation, advice about water application, and trouble shooting training to user farmers. Soon, many farmers started using drip irrigation with little or no technical support from PARDYP. Some collected quantitative and qualitative information on the performance of their systems. Results and experiences were shared regularly after cropping seasons through interaction meetings. Users' experiences convinced many others to adopt the technology. Interaction meetings were organised to communicate farmers' feedback to the organisation and businesses involved in making the drip sets. Farmers from the watershed were taken to the drip set manufacturers to establish a direct link between them and to allow the project to phase out its support.

This approach emphasised on-station to on-farm research and demonstration to facilitate ongoing monitoring and evaluation of the performance of locally made drip sets.

LIEU

Lieu: Kavrepalanchowk/ Jhikhu Khola watershed, Népal

Géo-référence des sites sélectionnés

- 85.518, 27.75

Date de démarrage: sans objet

Année de fin de l'Approche: 2005

Type d'Approche

- ☐ traditionnel/ autochtone
- ☐ initiative/ innovation récente locale
- ☑ fondé sur un projet/ programme

Farmer interaction programme: results and experiences were shared regularly. through interaction meetings where drip users and non-users discussed the technology. (Madhav Dhakal)

OBJECTIFS DE L'APPROCHE ET ENVIRONNEMENT FAVORABLE

Principaux objectifs de l'Approche

The Approach focused mainly on SLM with other activities (income generating activities, vegetable farming with micro irrigation system)
To test, demonstrate, and evaluate drip irrigation systems under local conditions with multiple stakeholders. To share results and experiences with communities to scale up the technology
The SLM Approach addressed the following problems: - Lack of systematic on-farm research on drip irrigation. - Weak institutional collaboration for developing, disseminating and scaling up drip technology. - Inadequate water available for agriculture alongside strong seasonality and poor irrigation facilities

Conditions favorisant la mise en oeuvre de la/(des) Technologie(s) appliquée(s) sous l'Approche

- **Cadre juridique (régime foncier, droits d'utilisation des terres et de l'eau)**: The existing land ownership, land use rights / water rights greatly helped the approach implementation: Because of private land owners there were no conflicts on land to implement the technology and for it's dissemination. and scaling up.

Conditions entravant la mise en oeuvre de la/(des) Technologie(s) appliquée(s) sous l'Approche

- **Disponibilité/ accès aux ressources et services financiers**: Insufficient government incentives Treatment through the SLM Approach: A Cost-effective technology and implementing approach
- **Cadre institutionnel**: Weak institutional collaboration among line agencies Treatment through the SLM Approach: Participatory action research with several institutions - universities, local research centres, and farmers
- **Connaissances sur la GDT, accès aux supports techniques**: Promotion of micro irrigation was not a priority of line agencies in the study area Treatment through the SLM Approach: Technology implemented with multiple stakeholders' participation
- **Autre**: Lack of awareness on potential water-saving options Treatment through the SLM Approach: Community-based training, discussions and field visits

PARTICIPATION ET RÔLES DES PARTIES PRENANTES IMPLIQUÉES DANS L'APPROCHE

Parties prenantes impliquées dans l'Approche et rôles

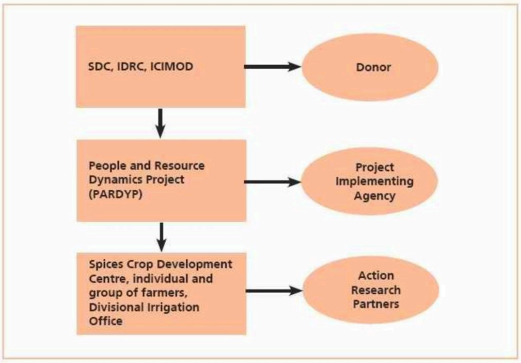
Quels acteurs/ organismes d'exécution ont été impliqués dans l'Approche?	Spécifiez les parties prenantes	Décrivez le rôle des parties prenantes
exploitants locaux des terres / communautés locales		On farm research and demonstration men and women worked equally
organisations communautaires		existing groups of land users; community forest user group and terrace improvement committee
Spécialistes de la GDT/ conseillers agricoles	Field technicians	
ONG		On station research
gouvernement national (planificateurs, décideurs)		On station research
organisation internationale		On station research

Participation des exploitants locaux des terres/ communautés locales aux différentes phases de l'Approche

	aucun	passive	soutien extérieur	interactive	auto-mobilisation	
initiation/ motivation				✓		A water demand and supply survey identified problem of lack of water in the dry season for irrigating crops. The concept of drip irrigation was shared at public meetings and a demonstration plot established at a local agricultural research centre. Several farmer visits organised to the research cent
planification				✓		Public meetings; farmers showed interest in drip irrigation. The project supported them by transporting drip sets to the nearest roadhead and subsidising the purchase costs
mise en œuvre					✓	Farmers implemented the technology and the project provided technical support
suivi/ évaluation				✓		Mainly: measurements/observations, public meetings; partly: reporting; Farmers monitored the technology with project support. Evaluation was usually done at meetings and exchange visits.
Research					✓	On-farm; The technology was tested at the local research centre during the first few years followed by on-farm research with farmers. Farmers collected and analysed quantitative and qualitative information themselves.

Diagramme/ organigramme

PARDYP project donors and implementing partners: SDC (Swiss Agency for Development and Cooperation); IDRC (International Development Research Centre); ICIMOD



Prises de décision pour la sélection de la Technologie de GDT

Les décisions ont été prises par

- ☐ les exploitants des terres seuls (auto-initiative)
- ☐ principalement les exploitants des terres soutenus par des spécialistes de la GDT
- ☐ tous les acteurs concernés dans le cadre d'une approche participative
- ☑ principalement les spécialistes de la GDT, après consultation des exploitants des terres
- ☐ les spécialistes de la GDT seuls
- ☐ les responsables politiques/ dirigeants

Les décisions ont été prises sur la base de

- ☐ l'évaluation de connaissances bien documentées en matière de GDT (prises de décision fondées sur des preuves tangibles)?
- ☐ les résultats de recherches?
- ☐ expériences et opinions personnelles (non documentées)

SOUTIEN TECHNIQUE, RENFORCEMENT DES CAPACITÉS ET GESTION DES CONNAISSANCES

Les activités ou services suivants ont fait partie de l'approche

- ☑ Renforcement des capacités/ formation
- ☑ Service de conseils
- ☑ Renforcement des institutions (développement organisationnel)
- ☑ Suivi et évaluation
- ☑ Recherche

Renforcement des capacités/ formation

La formation a été dispensée aux parties prenantes suivantes

- ☑ exploitants des terres
- ☐ personnels/ conseillers de terrain
- ☑ extensionists/trainers

Formats de la formation

- ☐ sur le tas
- ☑ entre agriculteurs (d'exploitants à exploitants)
- ☑ zones de démonstration
- ☑ réunions publiques
- ☐ cours

Sujets abordés

Training programmes were organised on how to install and maintain the drip systems. Likewise farmers were trained on record keeping for water application, production, and cost-benefit analysis.

Service de conseils

Le service de conseils était fourni

- ☐ dans les champs des exploitants?
- ☐ dans des centres permanents

Name of method used for advisory service: Farmer to farmer dissemination; Key elements: Interactive meeting, on-station and on-farm visits, workshops; 1) Mainly: projects own extension structure and agents, Partly: non-governmental agency; Extension staff: specifically hired project employees 2) Target groups for extension: land users, technicians/SLM specialists; Activities: interactive meeting, farm visits , workshops Advisory service is quite adequate to ensure the continuation of land conservation activities; Government , NGOs and CBOs still continuing the activities.

Renforcement des institutions

Institutions ont été renforcées ou mises en place

- ☐ non
- ☐ oui, un peu
- ☐ oui, modérément
- ☑ oui, beaucoup

au niveau suivant

- ☑ local
- ☐ régional
- ☐ national

Décrivez l'institution, ses rôles et responsabilités, ses membres, etc.

Type de soutien

- ☐ financier
- ☑ renforcement des capacités/ formation
- ☐ équipement

Plus de détails

On-site training during drip installation provided to a local NGO (Ranipani Gram Sewa Kendra) with vegetable seedling support.

Suivi et évaluation

bio-physical aspects were ad hoc monitored through observations; indicators: land use change, crop rotation, soil surveys technical aspects were regular monitored through measurements; indicators: water requirements socio-cultural aspects were ad hoc monitored through observations; indicators: socioeconomic surveys economic / production aspects were ad hoc monitored through measurements; indicators: cost-benefit production area treated aspects were regular monitored through measurements; indicators: area under drip irrigation land users involved aspects were regular monitored through observations; indicators: number of drip users There were few changes in the Approach as a result of monitoring and evaluation: The subsidy system was withdrawn and work with groups rather than single households was started. In addition, interaction programmes were organised at different locations in the watershed. There were no changes in the Technology as a result of monitoring and evaluation.

Recherche

La recherche a traité les sujets suivants

- ☐ sociologie
- ☐ économie/ marketing
- ☐ écologie
- ☐ technologie

Action research was carried out to compare the water requirements, the cost-benefit, and the advantages and disadvantages of traditional and drip irrigation.
Research was carried out both on station and on-farm

FINANCEMENT ET SOUTIEN MATÉRIEL EXTERNE

Budget annuel en dollars US de la composante GDT

- ☐ < 2 000
- ☑ 2 000-10 000
- ☐ 10 000-100 000
- ☐ 100 000-1 000 000
- ☐ > 1 000 000

Precise annual budget: sans objet

Approach costs were met by the following donors: international non-government (SDC, IDRC, ICIMOD): 50.0%; local community / land user(s) (labour): 50.0%

Les services ou mesures incitatives suivantes ont été fournis aux exploitants des terres

- ☑ Soutiens financiers/ matériels fournis aux exploitants des terres
- ☑ Subventions pour des intrants spécifiques
- ☐ Crédits
- ☐ Autres incitations ou instruments

Soutiens financiers/ matériels fournis aux exploitants des terres

La main d'oeuvre fournie par les exploitants des terres était

- ☑ volontaire
- ☐ vivres-contre-travail
- ☐ payée en espèces
- ☐ récompensée avec un autre soutien matériel

ANALYSES D'IMPACT ET CONCLUSIONS

Impacts de l'Approche

	Non	Oui, un peu	Oui, modérément	Oui, beaucoup
Est-ce que l'Approche a aidé les exploitants des terres à mettre en œuvre et entretenir les Technologies de GDT? Land users started cropping land that was previously left fallow in the dry season and increased the area under cash crops - especially vegetables. Drip irrigation used only 60% of water compared to bucket irrigation.	☐	☐	☑	☐
Did other land users / projects adopt the Approach? A few institutions and district level line agencies like Ranipani Gram Sewa Kendra, a local NGO, and the Divisional Irrigation Office Kabhrepalanchok started organising interactive meetings to discuss drip irrigation.	☐	☑	☐	☐

Principale motivation des exploitants des terres pour mettre en oeuvre la GDT

- ☑ augmenter la production

Durabilité des activités de l'Approche

Les exploitants des terres peuvent-ils poursuivre ce qui a été mis en oeuvre par le biais de l'Approche (sans soutien extérieur) ?

- [ ] augmenter la rentabilité/ bénéfice, rapport coûts-bénéfices
- [ ] réduire la dégradation des terres
- [ ] réduire les risques de catastrophe
- [x] réduire la charge de travail
- [ ] paiements/ subventions
- [ ] règles et règlements (amendes)/ application
- [ ] prestige, pression sociale/ cohésion sociale
- [ ] affiliation à un mouvement/ projet/ groupe/ réseaux
- [ ] conscience environnementale
- [ ] coutumes et croyances, morale
- [ ] améliorer les connaissances et compétences en GDT
- [ ] améliorer l'esthétique
- [ ] atténuer les conflits

- [ ] non
- [x] oui
- [ ] incertain

Most of the land users continue to use drip irrigation and are maintaining the sets. A few farmers, including women, abandoned drip after using it for some time. The women who abandoned it said they did so because of 'lack of technical knowledge', 'not enough labour' and 'too far to get water'

CONCLUSIONS ET ENSEIGNEMENTS TIRÉS

Points forts: point de vue de l'exploitant des terres

- Regular interaction meetings provided land users with a platform to share ideas and for non-adopters to learn about drip from users. (How to sustain/ enhance this strength: Continue such meetings and involve more potential adopters)
- Farmer-to-farmer visits were helpful to build confi dence of farmers by seeing on-site results (How to sustain/ enhance this strength: Continue such meetings and involve more potential adopters)
- On-site training on drip installation and maintenance helped build confi dence in using drip sets (How to sustain/ enhance this strength: Continue such meetings and involve more potential adopters)

Points forts: point de vue du compilateur ou d'une autre personne-ressource clé

- This approach emphasises the participation of multiple stakeholders in researching, disseminating, and scaling up the use of the technology. (How to sustain/ enhance this strength: Identify and involve new interested stakeholders.)
- On-station and on-farm research was important to get results from different locations and under different conditions. (How to sustain/ enhance this strength: Continue research to acquire in-depth knowledge on performance of drip irrigation under different conditions.)

Faiblesses/ inconvénients/ risques: point de vue de l'exploitant des terrescomment surmonter

Faiblesses/ inconvénients/ risques: point de vue du compilateur ou d'une autre personne-ressource clécomment surmonter

- Women drip farmers' constraints were not sufficiently addressed. Women's priorities and constraints must be better understood and addressed by programmes and projects on drip irrigation.
- Many local land users remain unaware about the potential of drip irrigation technology. Make more funds available to further promote the technology.

RÉFÉRENCES

Compilateur
Madhav Dhakal

Editors

Examinateur
Laura Ebneter

Date de mise en oeuvre: 16 janvier 2009

Dernière mise à jour: 28 juin 2017

Personnes-ressources
Madhav Dhakal (mdhakal@icimod.org) - Spécialiste GDT
Isabelle Providoli (isabelle.providoli@unibe.ch) - Spécialiste GDT

Description complète dans la base de données WOCAT
https://qcat.wocat.net/fr/wocat/approaches/view/approaches_2350/

Données de GDT correspondantes
Technologies: Low cost drip irrigation https://qcat.wocat.net/fr/wocat/technologies/view/technologies_1501/
Technologies: Low cost drip irrigation https://qcat.wocat.net/fr/wocat/technologies/view/technologies_1501/

La documentation a été facilitée par

Institution
- CDE Centre for Development and Environment (CDE Centre for Development and Environment) - Suisse
- ICIMOD International Centre for Integrated Mountain Development (ICIMOD) - Népal

Projet
- sans objet

Références clés

- Shrestha-Malla, S. (2004). Adoption of Drip Technology and its Impact on Gender: a Case Study from Jhikhu Khola Watershed, Nepal. PARDYP/ICIMOD (unpublished): ICIMOD
- ICIMOD (2007) Good Practices in Watershed Management, Lessons Learned in the Mid Hills of Nepal. Kathmandu: ICIMOD: ICIMOD